MONTANA DEPARTMENT OF TRANSPORTATION WETLAND MITIGATION MONITORING REPORT: YEAR 2010

Easton Ranch Park County, Montana



Prepared for:



December 2010

Prepared by:



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WETLAND MITIGATION MONITORING REPORT:

YEAR 2010

Easton Ranch Park County, Montana

MDT Project Number STPX-0034(14) Control Number 4866

MFWP: SPA MDT R3-56-2008 USACE: NWO-2006-90370-MTB

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Cover: Photo of a Lesser Yellowlegs probing for insects along the recently excavated wetland cell near the southern periphery of the Easton Project Site.





1. INTRODUCTION

The Easton Ranch Wetland Mitigation 2010 Monitoring Report presents the results of the first of a minimum of five years post-construction monitoring at the Easton Ranch mitigation area. The Montana Department of Transportation (MDT) wetland mitigation project at the Easton Ranch is located in the Northwest quarter of Section 32, Township 4 North, Range 9 East, Park County, Montana. The property is located approximately three miles east of US Highway 89 and four miles northeast of Wilsall (Figure 1). The wetland conservation easement area encompasses approximately 34 fenced acres and is located east of the Shields River within the boundaries of the larger Easton Family Ranch (MDT 2008). Figures 2 and 3 in Appendix A show the site monitoring activity locations and mapped site features, respectively. The MDT Mitigation Monitoring Form, US Army Corps of Engineers (USACE) Routine Wetland Determination Data Forms (USACE 2010), and the 2008 MDT Montana Wetland Assessment Forms are included in Appendix B. Representative photographs are included in Appendix C and the Project Plan Sheet is included in Appendix D.

The wetland restoration site is located within Watershed 13 – Upper Yellowstone River Basin. Wetlands developed at this location are to provide compensatory mitigation for wetland impacts associated with transportation projects in the Butte District. The Easton Ranch site was selected after an extensive search of potential wetland and stream restoration sites by MDT within the Shields River Valley in cooperation with personnel from the Park County Conservation District (PCCD) and the US Department of Agriculture (USDA) Natural Resource Conservation Service Center (NRCS) in Livingston.

Construction entailed the excavation of a series of wetland cells and a flood channel that bisects the 34 acre mitigation area. The primary source of wetland hydrology is groundwater supplemented by surface water during high flows and flood events associated with the Shields River. An existing irrigation diversion and delivery system was maintained to provide water to the northeast corner of the site. Revegetation tasks included planting cuttings and containerized shrubs, seeding wetland herbaceous species within the excavated wetland areas, transplanting wetland plants and soils from existing wetlands to excavated areas, and recruiting indigenous plants.

The wetland project was designed to increase flood storage, improve wildlife habitat, and restore riparian and wetland habitat impacted by past agricultural practices within the Shields River watershed.

The project objectives are listed below.

- Re-establish a previously existing relic floodplain channel and the associated riparian and floodplain wetland areas.
- Create approximately 25 acres of emergent, scrub/shrub and riparian wetlands by replacing existing hay fields with a variety of wetland





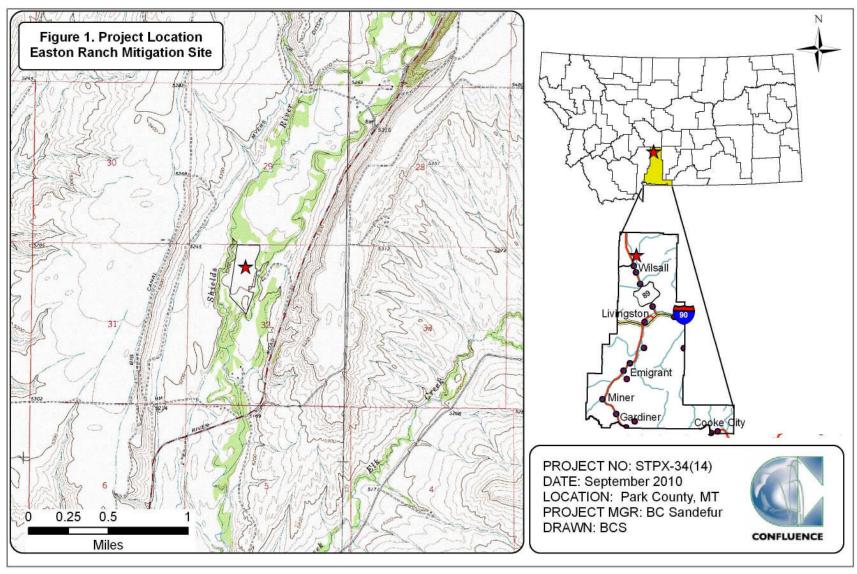


Figure 1. Project location of Easton Ranch Mitigation Site.



- communities that mimic habitats found in bio-reference wetland areas located north and south of the project.
- Re-establish hydrology to approximately 1.56 acres of drained wetlands in the northern portion of the site. Preserve 1.1 acres of existing scrub/shrub wetland and forested riparian communities at several locations within the project area.
- Mimic old meander scars and relic flood channels within the wetland mitigation site.
- Improve water storage capacity and increase the amount of floodplain area across the site.
- Increase the amount of wildlife habitat in this reach of the Shields River.

The project credit ratios approved by the U.S. Army Corps of Engineers (USACE) are shown in Table 1 (MDT 2008).

Table 1. Determination of Wetland Credits.

Proposed Mitigation Features	Compensatory Mitigation Type	USACE Mitigation Ratios	Acres	Final Credit Estimate (Acres)
Creation of palustrine emergent wetland via shallow excavation.	Creation	1:1	24.95	24.95
Re-establishment of relic flood channel.	Restoration (Re-establishment)	1:1	1.56	1.56
Preservation of existing shrub/scrub and palustrine emergent wetland.	Preservation	4:1	1.10	0.275
Establish a 50-foot wide upland buffer.	Upland Buffer	5:1	6.43	1.29
Project Impacts	Debit			(0.67)
Total	Total			27.41

The approved performance standards are listed below (MDT 2008).

- 1. **Wetland Characteristics**: All restored, created, enhanced, and preserved wetlands within the project limits will meet the three parameter criteria for hydrology, vegetation, and soils established for determining wetland areas as outlined in the *1987 Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the *2010 Regional Supplement to the Corps of Engineers Manual: Western Mountains, Valleys, and Coast Region* (USACE 2010).
 - a) Wetland Hydrology Success will be achieved where wetland hydrology is present as per the technical guidelines in the 1987 Manual and the 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual.
 - (i) Soil saturation will be present for at least 12.5 percent of the growing season.





- (ii) Groundwater wells will be left undisturbed within the site for the purpose of monitoring groundwater elevations during the growing season.
- (iii) Depressional wetlands excavated into the upland areas will be monitored to determine if groundwater hydrology is filling sites and establishing vegetation communities.
- (iv) Hydrologic success will also require that the constructed stream channel be stable in the wetlands.
- b) Hydric Soil Success will be achieved where hydric soil conditions are present (per the most recent NRCS definitions for hydric soil) or appear to be forming, the soil is sufficiently stable to prevent erosion, and the soil is able to support plant cover. Soil sampling will be conducted during the course of the monitoring period to determine if wetland areas are exhibiting characteristics of hydric soils per the 1987 Wetland Manual. Since typical hydric soil indicators may require long periods to form, a lack of distinctive hydric soil features will not be considered a failure if hydrologic and vegetation success is achieved.
- c) Hydrophytic Vegetation Success will be achieved through the delineation of developing wetlands utilizing the technical guidelines established in the 1987 Wetland Manual and the 2010 Regional Supplement. The following concept of "dominance", as defined in the 1987 Manual, will be applied during future routine wetland determinations in created/restored wetlands: "Subjectively determine the dominant species by estimating those having the largest relative basal area (woody overstory), greatest height (woody understory), greatest percentage of aerial cover (herbaceous understory), and/or greatest number of stems (woody vines)."
 - i. Woody Plants Trees and shrubs are to be installed at various locations to provide structural diversity within the site at the direction of the MDT Reclamation Specialist. Survival of woody plant species planted within the site will be evaluated to determine survival rates and success of the planting each year of the monitoring period. Success of these planted species will be determined by stem counts each year to determine survival rates of the various planted woody species and will also include the evaluation of naturally recruited woody plant species within the site. "Scrub/shrub wetland habitat will be achieved where 30 percent absolute cover by cuttings, planted and volunteer woody plants is reached within the defined monitoring period or the site is showing signs of progression (e.g. by approximating stem densities and estimating future canopy coverage, or using other appropriate methods) towards that goal at the end of the defined monitoring period."





- ii. **Herbaceous Plants** At the conclusion of the monitoring period, ocular coverage of desirable hydrophytic vegetation (wetland plants listed as OBL, FACW and FAC) will be at least 80 percent. A wetland seed mix was prepared for this site that included tufted hairgrass (*Deschampsia cespitosa*), beaked sedge (*Carex utriculata*), Baltic rush (*Juncus balticus*), American sloughgrass (*Beckmannia syzigachne*), American mannagrass (*Glyceria grandis*), bluejoint reedgrass (*Calamagrostis canadensis*)
- Wetland Acreage Development will provide 34.04 acres of emergent and scrub/shrub wetlands within the project site (Table 1 and Project Plan Sheet, Appendix D).
 - a) Emergent wetlands will comprise approximately 70 to 75 percent of the site.
 - b) Scrub/shrub wetland and riparian areas will comprise 15 to 20 percent of the site primarily along the proposed stream corridor and between created wetlands.
 - c) Open water will comprise approximately less than 5 percent of the total wetland area within the site after final monitoring.
- 3. **Floodplain Channel Restoration Success** will be evaluated in terms of revegetation and bank stability success.
 - a) The floodplain channel corridor will be considered stable when banks are vegetated with a majority of deep-rooting riparian and wetland plant species.
 - b) Bank pins will be established at appropriate locations along the new relic floodplain channel to monitor channel stability and to measure channel movement.
 - c) Bank stability success will be evaluated by utilizing the bioreference reaches to the north and south of the project area as comparisons due to their relatively undisturbed and vegetated mixture of woody and herbaceous riparian and wetland plant species.
 - d) Vegetation transects will be monitored along the relic floodplain channel corridor to determine root stability indices of the riparian and wetland plant species as it develops.
- 4. **Bank Stabilization Success** along the Shields River in the northwestern corner of the site will be evaluated in terms of revegetation and bank stability success.
 - a) Bank stability will be achieved when the banks are vegetated with a majority of deep-rooting riparian and wetland plant species.
 - b) This area will be visually inspected and photo documented for incorporation into the annual monitoring reports to outline the success of the bank stabilization.





- c) If annual monitoring determines that the banks are eroding, the USACE and Fish, Wildlife, and Parks (FWP) will be contacted to coordinate a field meeting for joint evaluation and consultation on remediation.
- 5. Upland Buffer Success will be achieved when the noxious weeds do not exceed 10 percent of cover within the buffer areas on site. Any area within the creditable buffer zone disturbed by project construction must have at least 50 percent aerial cover of non-weed species by the end of the monitoring period.
- 6. Weed Control will be based upon annual monitoring of the site to determine weed species and degree of infestation within the site, and control measures based upon the monitoring results will be implemented by MDT to minimize and/or eliminate the intrusion of State Listed Noxious weed species within the site. MDT will manage the wetland conservation easement area to meet a goal of having less than 5percent absolute cover of state listed noxious weed species across the site. The land owner is currently managing the property to control current weed problems (knapweed and hounds tongue) prior to the initiation of wetland construction activities within the site.
- 7. **Fencing** of the proposed mitigation site has been installed along the easement boundaries to protect the integrity of the wetland from disturbance that may be detrimental to the site. Fencing installed along the perimeter of the site has been designed to be "wildlife friendly" to allow for wildlife movement into and out of the wetland complex.
- **8. Monitoring** of this MDT mitigation site will be based upon the MDT standard monitoring protocols utilized for all MDT wetland mitigation sites for a minimum period of five years or longer as determined by the US Army Corps, Montana Regulatory Office's review of annual monitoring reports for the site and whether or not the site has met the wetland success criteria.

2. METHODS

The first year of monitoring was completed on August 25, 2010. Information for the Wetland Mitigation Site Monitoring Form and USACE Routine Wetland Determination Data Form (USACE 2010) was entered electronically in the field on a personal digital assistant (PDA) palmtop computer during the field investigation (Appendix B). Monitoring activity sites were located with a global positioning system (GPS) as shown on Figure 2 (Appendix A). Information collected included: wetland delineation, vegetation community mapping, vegetation transect monitoring, soil data collection, hydrology data collection, bird and wildlife use documentation, photographs, and a non-engineering examination of the infrastructure established within the mitigation project area.





2.1. Hydrology

Hydrological indicators as outlined on the USACE wetland determination data form were documented at four data points established within the project area. The hydrologic indicators were evaluated according to features observed during the site visit. The data were recorded on electronic field data sheets (Appendix B). Hydrologic assessments allow evaluation of mitigation goals addressing inundation/saturation requirements.

Technical criteria for wetland hydrology guidelines have been established as "permanent or periodic inundation, or soil saturation within 12 inches of the ground surface for a significant period (12.5 percent of the growing season) during the growing season" (USACE 2010). Systems with continuous inundation or saturation for greater than 12.5 percent of the growing season are considered jurisdictional wetlands. The growing season is defined for purposes of this report as the number of days where there is a 50 percent probability that the minimum daily temperature is greater than or equal to 28 degrees Fahrenheit (Environmental Laboratory 1987). The growing season recorded for the predominant soil map unit, Meadowcreek series (155A), averages 80 days (USDA 2010). Areas defined as wetlands would require 10 days of inundation or saturation within 12 inches of the ground surface to meet the hydrology criteria.

Soil pits excavated during the wetland delineation were used to evaluate groundwater levels within 18 inches of the ground surface. The data was recorded on the delineation data form (Appendix B).

2.2. Vegetation

The boundaries of dominant species-based vegetation communities were determined in the field during the active growing season and subsequently delineated on aerial photographs. Percent cover of dominant species within a community type was estimated and recorded using the following values: 0 (less than 1 percent), 1 (1 to 5 percent), 2 (6 to 10 percent), 3 (11 to 20 percent), 4 (21 to 50 percent), and 5 (greater than 50 percent) (Appendix B).

Temporal changes in vegetation will be evaluated through annual assessments of static belt transects established in August 2010 (Figure 2, Appendix A). Vegetation composition was assessed and recorded along three vegetation belt transects (T-1, T-2, T-3) approximately 10 feet wide and 1,072, 1,333, and 733 feet long, respectively (Figure 2, Appendix A). Transects two and three traverse the floodplain channel corridor and banks to provide an assessment of root stability indices of the developing riparian and wetland plant species (Figure 2, Appendix A).

The transect locations were recorded with a resource-grade GPS unit. Spatial changes in the dominant vegetation communities were recorded along the stationed transect. The percent aerial cover of each vegetation species within the belt transect was estimated using the same values and cover ranges used for the polygon data on the aerial photograph (Figure 3, Appendix B). Photographs





were taken at the endpoints of each transect during the monitoring event (Appendix C).

The survival of woody species installed onsite was recorded during monitoring. Survival rates will be evaluated annually. The location of noxious weeds was noted in the field and mapped on the aerial photo (Figure 3, Appendix A). The noxious weed species identified are color-coded. The locations are denoted with the symbol "+", "▲", or "■" representing 0 to 0.1 acre, .1 to 1 acre, or greater than 1 acre in extent, respectively. Cover classes are represented by T, L, M, or H, for less than 1 percent, 1 to 5 percent, 2 to 25 percent, and 25 to 100 percent, respectively.

2.3. Soil

Soil information was obtained from the *Soil Survey for Park County Area* (USDA 2010) and *in situ* soil descriptions. Soil cores were excavated using a hand auger and evaluated according to procedures outlined in the 1987 Manual. A description of the soil profile, including hydric soil indicators when present, was recorded on the USACE Wetland Determination Form for each profile (Appendix B).

2.4. Wetland Delineation

Waters of the U.S. including special aquatic sites and jurisdictional wetlands were delineated throughout the project area in accordance with criteria established in the 1987 Manual and the 2010 Regional Supplement. The technical criteria for hydrophytic vegetation, hydric soil, and wetland hydrology described in the 2010 Regional Supplement must be satisfied to delineate a representative area as jurisdictional. The indicator status of vegetation was derived from the National List of Plant Species that Occur in Wetlands: Northwest Region 9 (Reed 1988). A Routine Level-2 on-site Determination Method (USACE 2010) was used to delineate jurisdictional areas within the project boundaries. The information was recorded electronically on the USACE Wetland Determination Data Form (Appendix B).

The wetland boundary was determined in the field based on changes in plant communities and/or hydrology, and changes in soil characteristics. Topographic relief boundaries within the project area were also examined and cross referenced with soil and vegetation communities as supportive information for this delineation. Vegetation composition, soil characteristics, and hydrology were assessed at likely wetland and adjacent upland locations. If all three parameters met the criteria, the area was designated as wetland and mapped by vegetation community type. If any one of the parameters did not exhibit positive wetland indicators, the area was determined to be upland unless the site was classified as an atypical situation, potential problem area, or special aquatic site, i.e., mudflat. The wetland boundary was identified on the aerial photograph. Wetland areas were estimated using geographic information system (GIS) methodology.





2.5. Wildlife

Observations and other positive indicators of use of mammal, reptile, amphibian, and bird species were recorded on the wetland monitoring form during the site visit. Indirect use indicators, including tracks, scat, burrow, eggshells, skins, and bones, were also recorded. These signs were recorded while traversing the site for other required activities. Direct sampling methods, such as snap traps, live traps, and pitfall traps, were not used. A comprehensive wildlife species list of species observed in 2010 was compiled.

2.6. Functional Assessment

The 2008 MDT Montana Wetland Assessment Method (Berglund and McEldowney 2008) was used to evaluate functions and values on the site in 2010. This method provides an objective means of assigning wetlands an overall rating and provides regulators a means of assessing mitigation success based on wetland functions. Functions are self-sustaining properties of a wetland ecosystem that exist in the absence of society and relate to ecological significance without regard to subjective human values (Berglund and McEldowney 2008). Field data for this assessment were collected during the site visit. A Functional Assessment Form was completed for the 34-acre project area (Appendix B).

2.7. Photo Documentation

Monitoring at photo points provided supplemental information documenting wetland condition, trends, current land use surrounding the site, the upland buffer, the monitored area, and the vegetation transects. Photographs were taken at established photo points throughout the mitigation site during the site visit (Appendix C). Photo point locations were recorded with a resource grade GPS unit (Figure 2, Appendix A).

2.8. GPS Data

Site features and survey points were collected with a resource grade Thales Pro Mark III GPS unit during the 2010 monitoring season. Points were collected using WAAS-enabled differential corrected satellites, typically improving resolution to sub-meter accuracy. The GPS data were subsequently exported into GIS and drawn in Montana State Plane Single Zone NAD 83 meters. In addition to GPS, some site features within the site were hand-mapped onto an aerial photograph and then digitized. Site features and survey points that were mapped included fence boundaries, photograph points, transect beginnings and endings, wetland boundaries, and vegetation community boundaries.

2.9. Maintenance Needs

Channels, engineered structures, fencing, and other features were examined during the site visit for obvious signs of breaching, damage, or other problems. This was a cursory examination and did not constitute an engineering-level structural inspection.





3. RESULTS

3.1. Hydrology

Climate data from the meteorological station at Wilsall 8 ENE, Montana (249023), recorded an average annual precipitation rate of 20.15 inches from April 1957 to April 2010 (WRCC 2010). The annual precipitation rate recorded in 2009 was 16.65 inches. A rate of 10.02 and 13.88 inches was recorded from January to July 2009 and 2010, respectively. The 53 year average for the same time period was 13.36 inches. The average precipitation in 2010 was higher than the 53 year average for the period of record.

The irrigation diversion system located upgradient of the wetland cells was closed during the August investigation. The onsite hydrological conditions were drier than anticipated during the first growing season. Approximately five percent of the site was inundated with surface water depths ranging from 0 to 18 inches. Data point E-2 (Figure 2, Appendix A) located within wetland community Type 3 (see type descriptions in the following sections) exhibited saturated soil at 10 inches below the ground surface (bgs). Wetland Type 5 data point E-3 revealed saturated soil at 8 inches bgs. Data point E-4, located within wetland Type 7, had a high water table recorded at 10 inches bgs and saturated soil at 2 inches bgs.

3.2. Vegetation

Monitoring year 2010 marked the first year of monitoring on the Easton Ranch wetland mitigation site. The purpose of the first year of monitoring was to establish a baseline for monitoring and describing the vegetation types and coverage of the wetland mitigation area. Sixty-five plant species were observed site wide in 2010, the first year of monitoring. Vegetation plant communities were identified by plant composition and dominance, topography, and hydrology. The communities and associated species composition is shown on the Monitoring Form in Appendix B and the communities are illustrated on Figure 3 in Appendix A. The irrigation diversion system located upgradient of the wetland cells was closed during the August investigation resulting in drier site conditions than anticipated during the first growing season, which affected wetland development.

Vegetation community types named for the dominant species based on percent cover were Type 1 – *Phleum pratense/Poa pratensis* Upland; Type 2 – *Chenopodium* spp./*Phleum pratense* Upland; Type 3 – *Carex* spp. Wetland; Type 4 – *Salix drummondiana /Carex* spp. Wetland; Type 5 – *Populus angustifolia* Wetland; Type 6 – *Beckmannia syzigachne* Wetland; and Type 7 – Transitional open water (Figure 3, Appendix A). Type 7 was characterized by the presence of 0.0 to 1.5 feet of water and a lack of vegetation.

Upland community Type 1 - Phleum pratense/Poa pratensis was identified in the higher elevation upland areas that surround the constructed wetland cells and channel (Figure 3, Appendix A). The species were dominated by herbaceous species in descending order of abundance including common timothy (*Phleum*





pratense), Kentucky bluegrass (*Poa pratensis*) smooth brome, (*Bromus inermis*), quack grass (*Agropyron repens*), redtop (*Agrostis stolonifera*), with minor (1 to 5 percent) cover of wild mustard (*Brassica kaber*), Japanese brome (*Bromus japonicus*), caraway (*Carum carvi*), common sunflower (*Helianthus annuus*), bluejoint reedgrass (*Calamagrostis canadensis*), orchard grass (*Dactylis glomerata*), quaking aspen (*Populus tremula*), and white clover (*Trifolium repens*).

Upland community Type 2 — Chenopodium spp./Phleum pratense was identified in the driest areas of the constructed wetland cells. The vegetation cover was comprised of white (Chenopodium album) and narrow-leaf (Chenopodium leptophyllum) goosefoot, common timothy, common dandelion (Taraxacum officinale), with minor cover contributed by wild mustard, Japanese brome, Canada thistle (Cirsium arvense), Western stickseed (Lappula occidentalis), fringed brome (Bromus marginatus), caraway, bull thistle (Cirsium vulgare), rough bugleweed (Lycopus asper), tall tumble mustard (Descuriania sophia), and field pennycress (Thlaspi arvense).

Wetland community Type 3 – Carex species (spp.) encompassed pre-existing wetlands located at the north and west edges of the site. The community was dominated by beaked sedge (Carex rostrata), Nebraska sedge (Carex nebrascensis), water sedge (Carex aquatilis), sandbar willow (Salix exigua), American sloughgrass (Beckmannia syzigachne), Canada thistle, poverty rush (Juncus tenuis), common mint (Mentha arvensis), cloaked bulrush (Scirpus pallidus), fowl mannagrass (Glyceria striata), rough bugleweed, common plantain (Plantago major), and small-fruited bulrush (Scirpus microcarpus).

Wetland community Type 4 – Salix drummondiana /Carex spp was identified in a small area located in the southwest corner of the site near the bank of the Shields River. The area encompassed pre-existing wetland dominated by Drummond willow (Salix drummondiana), Nebraska sedge, reed canary grass (Phalaris arundinacea), American sloughgrass, field clustered sedge (Carex praegracilis), tall mannagrass (Glyceria grandis), small-fruited bulrush, water foxtail (Alopecurus geniculatus), hairy willow herb (Epilobium ciliatum), and common mint.

Community Type 5 – *Populus angustifolia* was a pre-existing wetland with a woody overstory located adjacent to the construction area. The vegetation community was dominated by narrow-leaf cottonwood (*Populus angustifolia*), tall mannagrass, redtop, common timothy with minor cover contributed by American sloughgrass, beaked sedge, common mint, water sedge, Canada thistle, rough bugleweed, and small-fruited bulrush.

The areas within the constructed cells and channel with higher moisture levels were characterized by wetland community Type 6 – *Beckmannia syzigachne*. Isolated areas of the community were inundated at the time of the field investigation with evidence of increased areas of inundation during the first





portion of the growing season and saturation contributed by groundwater. The community type was dominated by American sloughgrass with the remainder of species each contributing less than 10 percent to total cover. The remaining species identified in this community included water plantain (*Alisma gramineum*), broad-leaf cattail (*Typha latifolia*), redtop, toad rush (*Juncus bufonius*), soft rush (*Juncus effusus*), hairy willow herb, and common plantain.

Table 2. Vegetation species observed in 2010 at the Easton Ranch Wetland Mitigation Site.

SCIENTIFIC NAME	COMMON NAME	REGION 9 INDICATOR
Achillea millefolium	yarrow,common	FACU
Agropyron repens	quackgrass	FACU
Agrostis stolonifera	bentgrass,spreading	FAC+
Alisma gramineum	water-plantain,narrow-leaf	OBL
Alnus incana	alder,speckled	FACW
Alopecurus geniculatus	foxtail,meadow	FACW+
Amaranthus retroflexus	amaranth,red-root	FACU+
Beckmannia syzigachne	sloughgrass, American	OBL
Brassica kaber	mustart, wild	NL
Bromus ciliatus	brome,fringed	FAC+
Bromus inermis	smooth brome	NL
Bromus japonicus	brome, Japanese	FACU
Bromus marginatus	brome, mountain	NL
Calamagrostis canadensis	reedgrass,blue-joint	FACW+
Carex aquatilis	sedge,water	OBL
Carex nebrascensis	sedge, Nebraska	OBL
Carex praegracilis	sedge,clustered field	FACW
Carex rostrata (utriculata*)	sedge,beaked	OBL
Carum carvi	caraway	NL
Chenopodium album	goosefoot,white	FAC
Chenopodium leptophyllum	goosefoot,narrow-leaf	FACU
Cirsium arvense	thistle,creeping	FACU+
Cirsium vulgare	thistle,bull	FACU
Convulvus arvensis	bindweed, field	NL
Cornus stolonifera	dogwood,red-osier	FACW
Dactylis glomerata	grass,orchard	FACU
Descuriania sophia	mustard, tansy	NL
Epilobium ciliatum	willow-herb,hairy	FACW-
Equisetum arvense	horsetail,field	FAC
Equisetum hyemale	horsetail,rough	FACW
Glyceria grandis	mannagrass, American	NL
Glyceria striata	mannagrass,fowl	OBL
Helianthus annuus	sunflower,common	FACU+
Juncus bufonius	rush,toad	FACW+
Juncus effusus	rush,soft	FACW+

¹Region 9 (Northwest) (Reed 1988).





^{*}Commonly accepted name not included in 1988 list.

Table 2. (Continued). Vegetation species observed in 2010 at the Easton Ranch Wetland Mitigation Site.

SCIENTIFIC NAME	COMMON NAME	REGION 9 INDICATOR STATUS ¹
Juncus tenuis	rush,slender	FAC
Lappula occidentalis	stickseed, flatspine	NL
Lycopus asper	bugleweed,rough	OBL
Medicago lupulina	medic,black	FAC
Melilotus officinalis	sweetclover,yellow	FACU
Mentha arvensis	mint,field	FAC
Mimulus guttatus	monkey-flower,common large	OBL
Phalaris arundinacea	grass,reed canary	FACW
Phleum pratense	timothy	FACU
Plantago major	plantain,common	FAC+
Poa pratensis	bluegrass, Kentucky	FACU+
Polypogon monspeliensis	grass,annual rabbit-foot	FACW+
Populus angustifolia	cotton-wood, narrow-leaf	FACW
Populus tremula (tremuloides*)	aspen,quaking	FAC+
Potentilla gracilis	cinquefoil, northwest	FAC
Rhamnus alnifolia	buckthorn,alder-leaf	FACU
Rumex crispus	dock,curly	FACW
Salix drummondiana	willow, Drummond	FACW
Salix exigua	willow,sandbar	OBL
Scirpus microcarpus	bulrush,small-fruit	OBL
Scirpus pallidus	bulrush,cloaked	OBL
Sisymbrium altissimum	mustard,tall tumble	FACU-
Stellaria graminea	starwort,lesser	FAC-
Taraxacum officinale	dandelion,common	FACU
Thlaspi arvense	penny-cress,field	NI
Trifolium pratense	clover,red	FACU
Trifolium repens	clover,white	FACU+
Triglochin maritimum	arrow-grass,seaside	OBL
Typha latifolia	cattail, broad-leaf	OBL

¹Region 9 (Northwest) (Reed 1988).

The number (polygon) 7 on Figure 3 (Appendix A) was defined by transitional open water with trace amounts of water plantain and beaked sedge found in the inundated depressions within the constructed wetland cells. There were areas of shallow water ranging from 0 to 18 inches deep and saturation to the ground surface within the transitional open water areas. The plant cover of wetland species is expected to increase long-term. The extent of inundation appeared to be higher during the July 17, 2010, aerial reconnaissance than observed during the August 25 field visit, suggesting a seasonal fluctuation of the water table (Figure 3, Appendix A.). Late season monitoring in 2010 may not reflect changes in hydrologic assessment at the site. Future monitoring events will be conducted earlier in the growing season.

Three vegetation transects were monitored at the Easton Ranch Wetland Mitigation Site in 2010 (Figure 2, Appendix A). The data recorded on Transect 1





^{*}Commonly accepted name not included in 1988 list.

(Monitoring Forms, Appendix B) is summarized in tabular and graphical formats on Table 3 and Chart 1 and Chart 2, respectively. The transect ends were photographed (Page C-2 in Appendix C). Transect 1 extends 1,072 feet from south to north across several constructed cells located west of the channel. The transect intervals alternated between upland communities Types 1 and 2, wetland community Type 6, and transitional open water. Hydrophytic vegetation communities dominated 28 percent of Transect 1.

Table 3. Data summary for Transect 1 in 2010 at the Easton Ranch Wetland Mitigation Site.

Monitoring Year	2010
Transect Length (feet)	1072
Vegetation Community Transitions along Transect	11
Vegetation Communities along Transect	3
Hydrophytic Vegetation Communities along Transect	1
Total Vegetative Species	33
Total Hydrophytic Species	15
Total Upland Species	18
Estimated % Total Vegetative Cover	65
% Transect Length Comprising Hydrophytic Vegetation Communities	28
% Transect Length Comprising Upland Vegetation Communities	70
% Transect Length Comprising Unvegetated Open Water	2.5
% Transect Length Comprising Bare Substrate	0.0

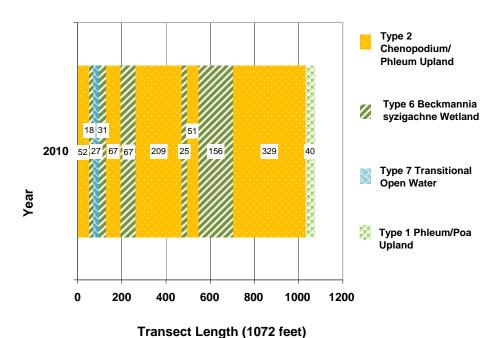
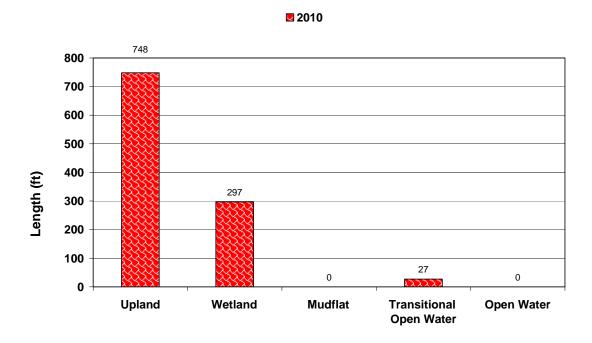


Chart 1. Transect map showing community types on Transect 1 in 2010 from start (0 feet) to end (1072 feet) at Easton Ranch.







Habitat Type

Chart 2. Length of habitat types within Transect 1 in 2010 at Easton Ranch.

Data collected on Transect 2 (Monitoring Form, Appendix B) were summarized in tabular and graphic formats (Table 5, Charts 3 and 4, respectively). The start and end of Transect 2 were photographed (Page C-3 in Appendix C). Hydrophytic vegetation communities dominated 38.7 percent of Transect 2.

Table 4. Data summary for Transect 2 in 2010 at the Easton Ranch Wetland Mitigation Site.

Monitoring Year	
Transect Length (feet)	1333
Vegetation Community Transitions along Transect	11
Vegetation Communities along Transect	4
Hydrophytic Vegetation Communities along Transect	2
Total Vegetative Species	35
Total Hydrophytic Species	17
Total Upland Species	18
Estimated % Total Vegetative Cover	65
% Transect Length Comprising Hydrophytic Vegetation Communities	38.7
% Transect Length Comprising Upland Vegetation Communities	61.3
% Transect Length Comprising Unvegetated Open Water	0.0
% Transect Length Comprising Bare Substrate	0.0





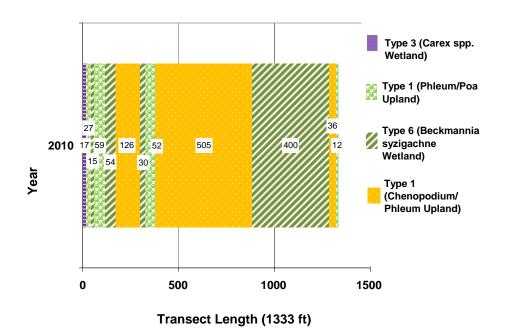


Chart 3. Transect maps showing community types on Transect 2 from start (0 feet) to end (1,333 feet) at Easton Ranch.

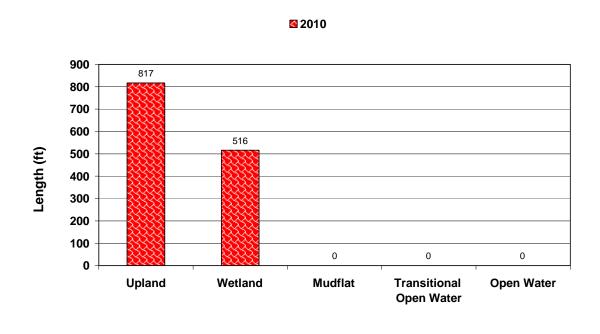


Chart 4. Length of habitat types within Transect 2 in 2010 at Easton Ranch.





Habitat Type

Transect 2 traverses the constructed wetlands located east of the channel from north to south. The transect crosses the constructed channel within the first 100 feet. The transect intervals intercepted wetland communities Types 3 and 6 and upland communities Types 1 and 2.

Transect 3 data (Monitoring Form, Appendix B) were summarized in tabular and graphic formats (Table 5 and Charts 5 and 6, respectively). The start and end of Transect 3 were photographed (Page C-3 in Appendix C).

Table 5. Data summary for Transect 3 in 2010 at the Easton Ranch Wetland Mitigation Site.

Monitoring Year	
Transect Length (feet)	751
Vegetation Community Transitions along Transect	11
Vegetation Communities along Transect	3
Hydrophytic Vegetation Communities along Transect	1
Total Vegetative Species	24
Total Hydrophytic Species	11
Total Upland Species	13
Estimated % Total Vegetative Cover	65
% Transect Length Comprising Hydrophytic Vegetation Communities	45
% Transect Length Comprising Upland Vegetation Communities	55
% Transect Length Comprising Unvegetated Open Water	0
% Transect Length Comprising Bare Substrate	0

Transect 3 was established west to east across the constructed cells and channel in the southern half of the site (Figure 2, Appendix A). This transect crosses the constructed floodplain channel between station 270 and 284 feet. The channel crossing was characterized by a dominance of American sloughgrass with 21 to 50 percent bare ground in portions of the interval. The transect intervals intercepted one wetland community, Type 6 and two upland communities, Types 1 and 2. Hydrophytic vegetation dominated 45 percent of Transect 3. This area of the site has a slightly lower grade and appears to intercept more groundwater than the northern half of the wetland complex.

Eight separate infestations of Canada thistle were identified in uplands around the site. Canada thistle is a Priority 2B noxious weed. The infestations shown on Figure 3 ranged in area from less than 0.1 acre to 0.1 to 1.0 acre. The cover classes ranged from low (1 to 5 percent cover) to moderate (5 to 25 percent cover). Isolated Canada thistle plants were observed in communities 2, 3 and 5. Non-noxious, invasive species included white and narrow-leaf goosefoot, common dandelion, wild mustard, Japanese brome, Western stickseed, fringed brome, caraway, rough bugleweed, tall tumble mustard, and field pennycress.





Several cuttings and containerized materials were planted along the constructed flood channel to increase root stability. The first year survival for both containerized plantings and cuttings was high, with over 90 percent of the observed plants supporting green leaves and living stems.

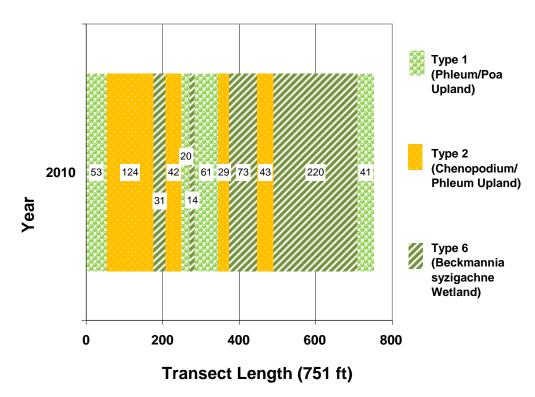


Chart 5. Transect maps showing community types on Transect 3 in 2010 from start (0 feet) to end (751 feet) at Easton Ranch.





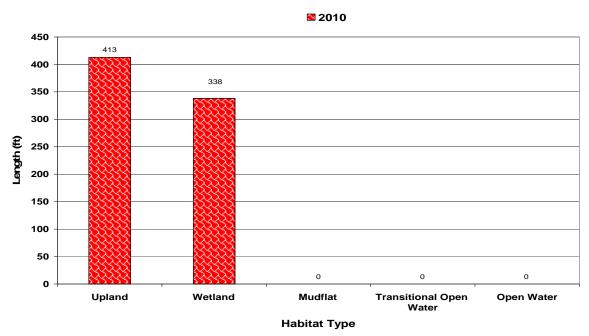


Chart 6. Length of habitat types within Transect 3 in 2010 at Easton Ranch.

3.3. Soil

The project site was mapped in the Park County Soil Survey (USDA 2010) within the Meadowcreek, rarely flooded-Nesda complex, found on 0 to 2 percent slopes (155A). The Meadowcreek series is a somewhat poorly drained clay loam soil mapped on floodplains in valleys. The soil survey classifies the soil as non-hydric although the taxonomy is a frigid Fluvaquentic Haplustolls. The Nesda loam (600B) is mapped in a small area at the south end of the project. The loam is a well-drained, non-hydric frigid Fluventic Haplustolls.

Soil test pits were excavated at four locations, all within the Meadowcreek series (E-1 through E-4, Figure 2, Appendix A). Data point E-1 was located in upland north of community 3. Soil pit E-2 was located within the pre-existing emergent wetland community 3. Data point E-3 was located in the existing forested wetland characterized by community 5. Data point E-4 was located in the newly excavated wetland at the boundary of the Type 6 *Beckmannia* wetland and transitional open water (Appendix D). The soil profile at E-1 revealed a dry friable clay loam (10YR 4/2) without any hydric soil indicators. The soil at E-2 was identified as a clay loam (10 YR 2/1) with redoximorphic depletions (10 YR 4/3) located within the matrix. The redox dark surface provided a positive indication of a hydric soil. Data point E-3 revealed a silty clay loam (10 YR 2/2) with redox concentrations (10 YR 3/4) in the matrix. The hydric soil indicator was a redox dark surface. The soil profile at E-4 was a very dark grayish brown silt loam (10 YR/3/2) with redox concentrations (10 YR 4/3) in the depleted matrix





providing a positive indication of hydric soil. The soil textures in the test pits generally correlated with the map unit.

3.4. Wetland Delineation

Four data points were used to define the vegetation, soil, and hydrology of site wetlands (E-1 to E-4, Figure 2, Appendix A and USACE Wetland Forms, Appendix B). Data point E-1 was located in upland community 1 and data points E-2 through E-4 were located in areas that met the wetland criteria. The total wetland acreage, including pre-existing wetland, was 11.53 acres. The August 24, 2010, delineation identified and mapped 1.10 acres of pre-existing emergent and shrub/scrub wetland within the mitigation boundaries (Figure 3, Appendix A). The pre-existing wetlands were originally defined during the baseline investigation completed in August 2001 (MDT 2008). The net wetland acreage of 10.43 includes 1.45 acres of the re-established flood channel (Community 6, Figure 3, Appendix A). An undisturbed upland buffer of 6.43 acres was maintained within the mitigation site.





Table 6. Total wetland acres delineated in August 2010 at Easton Ranch.

Habitat	2001 (acres)	2010 (acres)
Pre-existing Wetland Area	1.10	1.10
Created Wetland Area		10.43
Total Wetland Habitat	1.10	11.53

3.5. Wildlife

A comprehensive list of bird and other wildlife species observed directly or indirectly during the 2010 monitoring visit is presented in Table 8 (Appendix B). Seventeen bird species were observed directly during the first monitoring event including bald eagle, eastern kingbird, gray catbird, lesser yellowlegs, northern flicker, sandhill crane, yellow warbler, American goldfinch, bank swallow, cedar waxwing, golden eagle, killdeer, mourning dove, northern harrier, and tree swallow. White-tailed deer, Richardson's ground squirrel, and raccoon were viewed onsite. Moose and raccoon tracks were noted. Reptile and amphibians observed included Columbia spotted frog and plains gartersnake.

Table 7. Wildlife species observed within Easton Ranch Mitigation Site in 2010.

COMMON NAME	SCIENTIFIC NAME	
AMPI	HIBIAN	
Columbia spotted frog	Rana luteiventris	
Ві	RD	
American Crow	Corvus brachyrhynchos	
American Goldfinch	Spinus tristus	
AMERICAN ROBIN	Turdus migratorius	
AMERICAN WIGEON	Anas americana	
Bald Eagle	Haliaeetus leucocephalus	
Bank Swallow	Riparia riparia	
Black-billed Magpie	Pica hudsonia	
CANADA GOOSE	Branta canadensis	
Cedar Waxwing	Bombycilla cedrorum	
Eastern Kingbird	Tyrannus tyrannus	
Golden Eagle	Aquila chrysaetos	

Species identified by in 2010 by MDT are listed in CAPS.





Table 8. (Continued). Wildlife species observed within Easton Ranch Mitigation Site in 2010.

COMMON NAME	SCIENTIFIC NAME			
BIRD				
Gray Catbird	Dumetella carolinensis			
GREAT HORNED OWL	Bubo virginianus			
Killdeer	Charadrius vociferus			
Lesser Yellowlegs	Tringa flavipes			
MALLARD	Anas platyrhynchos			
MOUNTAIN BLUEBIRD	Sialia currucoides			
Mourning Dove	Zenaida macroura			
Northern Flicker	Colaptes auratus			
Northern Harrier	Circus cyaneus			
Sandhill Crane	Grus canadensis			
SPOTTED SANDPIPER	Actitis macularius			
Tree Swallow	Tachycineta bicolor			
WILLET	Tringa semipalmata			
Yellow Warbler	Dendroica petechia			
MAN	MAL			
Moose	Alces americanus			
Raccoon	Procyon lotor			
Richardson's Ground Squirrel	Spermophilus richardsonii			
STRIPED SKUNK	Mephitis mephitis			
White-tailed Deer	Odocoileus virginianus			
REP	TILE			
Plains Gartersnake	Thamnophis radix			

Species identified by in 2010 by MDT are listed in CAPS.

3.6. Functional Assessment

This is the first year monitoring at this site and will serve as the baseline for functional assessments for comparison. The initial functional assessments of the existing emergent and shrub-scrub wetlands and constructed wetland cells and channel were completed as a baseline analysis in 2010 using the 2008 MDT Montana Wetland Assessment Method (Berglund and McEldowney 2008) (Appendix B). The project was separated into three assessment areas (AA). The Creation AA encompassed 8.98 acres of constructed palustrine, emergent wetland cells. The Restoration AA consisted of 1.45-acres of re-established relic flood channel that currently meets the wetland criteria. Approximately 1.56 acres of restoration credit was originally projected for the flood channel at a 1:1 credit ratio. The 1.1-acre Preservation AA encompassed the existing shrub/scrub and palustrine emergent wetland.

The Creation AA was rated as a Category III wetland with 52.5 percent of the total possible points. The ratings were high for short and long term surface water storage and groundwater discharge/recharge and moderate for general wildlife





habitat, flood attenuation, sediment/nutrient/toxicant removal, and production export/food chain support. Ratings for this wetland area are expected to improve as the site transitions from high to low disturbance and continues to develop wetland habitat. The Restoration AA received a Category III rating with 49.5 percent of the total possible points. Ratings were high for groundwater discharge/recharge and moderate for flood attenuation, short and long term surface water storage, sediment/nutrient/toxicant removal, and production export/food chain support. The existing wetland within the Preservation AA was rated as a Category II with 73.9 percent of the total possible. The presence of emergent, scrub/shrub, and forested wetlands types increased structural diversity ratings. Ratings were excellent for flood attenuation and high for general wildlife habitat, short and long term surface water storage, sediment/nutrient/toxicant removal, and groundwater discharge/recharge.

3.7. Photo Documentation

Photographs taken at photo points one through seven (PP1 through PP7; Figure 2, Appendix A) are shown on pages C-1 and C-2 of Appendix C. Panoramas of photo points PP-1 to PP-5 are included on pages C-4 and C-5 of Appendix C. Transect end points are shown on pages C-2 and C-3 of Appendix C.

3.8. Maintenance Needs

The diversion structure was closed during the August investigation. No manmade nesting structures were installed at the site. No maintenance is required on site structures. Eight separate infestations of Canada thistle were identified in uplands north of Type 3 and in the southwest corner of the project. Canada thistle is a Priority 2B noxious weed. The established weed management plan should continue to be implemented to prevent encroachment into the constructed wetland areas.

3.9. Current Credit Summary

Proposed mitigation included the creation of 24.95 acres of emergent, marsh, and shrub/scrub wetlands. Approximately 18.37 acres were designed to be emergent wetlands with water depths ranging from 0 to 1 foot. Up to 2.39 acres were designed to be emergent wetlands with 1- to 2-foot depths. Approximately 1.10 acres of pre-existing wetland were to be preserved and 6.43 acres of upland buffer were to be maintained.

Table 9 summarizes the current wetland credits based on the USACE approved credit ratios (MDT 2008) and the wetland delineation completed in August 2010. Approximately 7.78 acres of wetland developed within the constructed cells and 1.45 acres of wetland developed in the restored channel. The pre-existing wetland encompassed 1.1 acres. The upland buffer encompassed 6.43 acres. A 1.01-acre area of transitional open water currently devoid of vegetation was identified near the north and east boundaries of the site.





Table 9. Functions and Values of Easton Ranch Wetlands.

Function and Value Parameters from the 2008 MDT Montana Wetland Assessment Method	2010 Creation	2010 Restoration	2010 Preservation
Listed/Proposed T&E Species Habitat	Low (0.0)	Low (0.0)	Low (0.0)
MTNHP Species Habitat	Mod (0.6)	Mod (0.6)	Mod (0.6)
General Wildlife Habitat	Mod (0.5)	Low (0.3)	High (0.9)
General Fish/Aquatic Habitat	NA	NA	NA
Flood Attenuation	Mod (0.6)	Mod (0.5)	Exc (1.0)
Short and Long Term Surface Water Storage	High (0.9)	Mod (0.6)	High (0.8)
Sediment/Nutrient/Toxicant Removal	Mod (0.7)	Mod (0.6)	High (1.0)
Sediment/Shoreline Stabilization	Low (0.2)	Mod (0.6)	NA
Production Export/ Food Chain Support	Mod (0.5)	Mod (0.5)	Mod (0.7)
Groundwater Discharge/Recharge	High (1.0)	High (1.0)	High (1.0)
Uniqueness	Low (0.2)	Low (0.2)	Mod (0.6)
Recreation/Education Potential (bonus points)	Low (0.05)	Low (0.05)	Low (0.05)
Actual Points / Possible Points	5.25/10	4.95/10	6.65/9
% of Possible Score Achieved	52.5%	49.5%	73.9%
Overall Category	III	III	II
Acreage of Assessed Aquatic Habitats within Easement (ac)	8.98	1.45	1.1
Functional Units (acreage x actual points)	47.15	7.18	7.32

Table 10. Summary of wetland credits as of 2010.

Proposed Mitigation Features	Compensatory Mitigation Type	COE Mitigation Ratios	Final Credit Acreages	Proposed Final Wetland Credits (Acres)	2010 Credit Acreages	2010 Wetland Credits (Acres)
Creation of palustrine emergent wetland via shallow excavation.	Creation	1:1	24.95	24.95	7.78	7.78
Re-establishment of relic flood channel.	Restoration (Re-establishment)	1:1	1.56	1.56	1.45	1.45
Preservation of existing shrub/scrub and palustrine emergent wetland.	Preservation	4:1	1.10	0.28	1.10	0.28
Establish a 50-foot wide upland buffer.	Upland Buffer	5:1	6.43	1.29	6.43	1.29
Project Impacts			-0.67	-0.67	-0.67	-0.67
Total				27.40		10.12





4. REFERENCES

- Berglund, J. and R. McEldowney. 2008. *MDT Montana Wetland Assessment Method*. Prepared for Montana Department of Transportation, Helena, Montana. Post, Buckley, Schuh, & Jernigan, Helena, Montana. 42pp.
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual.* U.S. Army Corps of Engineers. Washington, DC.
- Montana Department of Transportation, 2008 Easton Family Ranch Wetland Mitigation Plan, Watershed #13 Upper Yellowstone River Basin, Park County, Montana
- Reed, P.B. 1988. *National list of plant species that occur in wetlands: North West (Region 9)*. Biological Report 88(26.9), May 1988. U.S. Fish and Wildlife Service, Washington, DC.
- U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0), ed. J. S.Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-3.Vicksburg, MS: U.S. Army Engineer Research and Development Center.

Websites:

- USDA/NRCS Web Soil Survey. Park County accessed August 2010: http://websoilsurvey.nrcs.usda.gov/app/
- WRCC United States Historical Climatology Network. 2010. Precipitation data accessed September 2010, from the world wide web at: http://www.wrcc.dri.edu/CLIMATEDATA.html





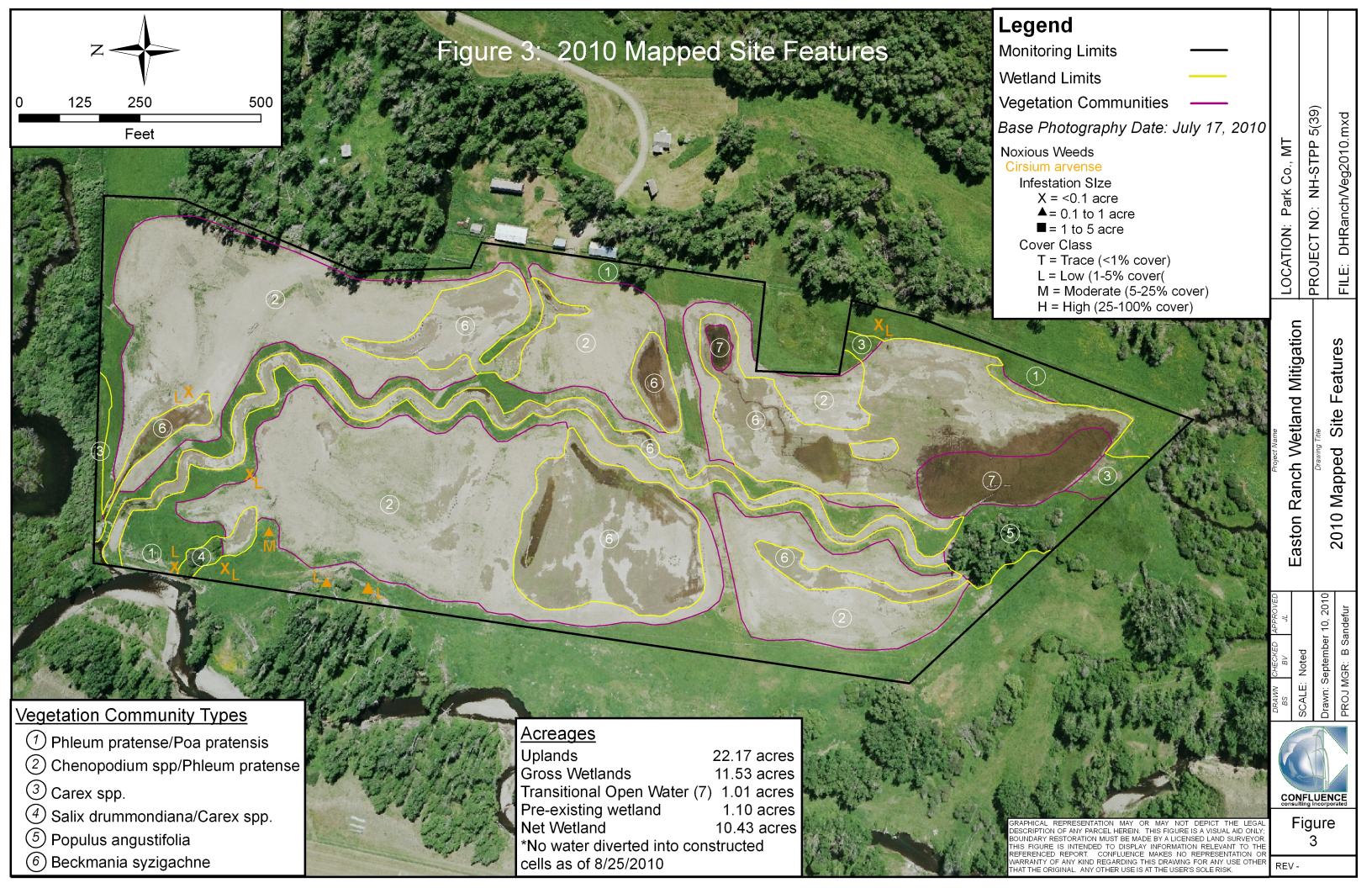
Easton Ranch Wetland Mitigation 2010 Monitoring Report	Easton Ranch	Wetland	Mitigation	2010	Monitorina	Report
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Appendix A

Figures 2 and 3

MDT Wetland Mitigation Monitoring Easton Ranch Park County, Montana





Easton Ranch Wetland Mitigation 2010 Monitoring Report

Appendix B

2010 Wetland Mitigation Site Monitoring Form 2010 USACE Wetland Delineation Form 2010 MDT Functional Assessment Form

MDT Wetland Mitigation Monitoring Easton Ranch Park County, Montana

MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: Easton Assessment Date/Time 8/25/2010 9:24:46 AM
Person(s) conducting the assessment: B. Sandefur
Weather: Clear, sunny, hot Location: Easton Ranch Mitigation Site
MDT District: ButteMilepost: 0
Legal Description: T_4N_R_9E_Section(s) NW 1/4 Sec 32
Initial Evaluation Date: 8/25/2010 Monitoring Year: 1 #Visits in Year: 1
Size of Evaluation Area: 34 (acres)
Land use surrounding wetland:
agricultural, hay pasture; undeveloped riverine
HYDROLOGY
Surface Water Source: High groundwater, overflow floodplain Shields River
nundation: Average Depth: 0.8 (ft) Range of Depths: 0-1.5 (ft)
Percent of assessment area under inundation:5 %
Depth at emergent vegetation-open water boundary:(ft)
f assessment area is not inundated then are the soils saturated within 12 inches of surface:Yes_
Other evidence of hydrology on the site (ex. – drift lines, erosion, stained vegetation, etc:
<u> </u>
Groundwater Monitoring Wells
Record depth of water surface below ground
Record depth of water surface below ground
dditional Activities Checklist:
Map emergent vegetation-open water boundary on aerial photograph.
Observe extent of surface water during each site visit and look for evidence of past surface water
levations (drift lines, erosion, vegetation staining, etc.)
Use GPS to survey groundwater monitoring well locations, if present.
200 C. C. to carro, ground mater mering from recallence, in precent
ydrology Notes:
rigation diversion at top of wetland cells closed; drier than expected conditions throughout this rst growing season.

VEGETATION COMMUNITIES

Site Easton

(Cover Class Codes $\mathbf{0} = < 1\%$, $\mathbf{1} = 1.5\%$, $\mathbf{2} = 6.10\%$, $\mathbf{3} = 11.20\%$, $\mathbf{4} = 21.50\%$, $\mathbf{5} = >50\%$)

Community # 1 Community Type: Phleum pratense / Poa pratensis

over class	Species	Cover class
2	Agrostis stolonifera	2
1	Bromus inermis	2
1	Calamagrostis canadensis	1
1	Dactylis glomerata	1
1	Phleum pratense	3
3	Populus tremula	1
0	Trifolium repens	1
	1 1 1 1	2 Agrostis stolonifera 1 Bromus inermis 1 Calamagrostis canadensis 1 Dactylis glomerata 1 Phleum pratense 3 Populus tremula

Comments:

Community # 2 Community Type: Chenopodium spp / Phleum pratense

Species	Cover class	Species	Cover class
Brassica kaber	1	Bromus japonicus	1
Bromus marginatus	1	Carum carvi	1
Chenopodium album	2	Chenopodium leptophyllum	2
Cirsium arvense	1	Cirsium vulgare	1
Convolvulus arvensis	1	Descurainia sophia	1
Equisetum arvense	0	Equisetum hyemale	0
Lappula occidentalis	1	Lycopus asper	1
Phleum pratense	2	Sisymbrium altissimum	1
Taraxacum officinale	1	Thlaspi arvense	1
Trifolium pratense	1		

Comments:

Community # 3 Community Type: Carex spp /

Species	Cover class	Species	Cover class
Beckmannia syzigachne	1	Carex aquatilis	2
Carex nebrascensis	2	Carex rostrata	4
Cirsium arvense	1	Glyceria striata	1
Juncus tenuis	1	Lycopus asper	1
Mentha arvensis	1	Plantago major	1
Salix exigua	2	Scirpus microcarpus	1
Scirpus pallidus	1		

Comments:

^{*} Indicates accepted spp name not on '88 list.

Community # 4 Community Type: Salix drummondiana / Carex spp

Species	Cover class	Species	Cover class
Alopecurus geniculatus	1	Beckmannia syzigachne	2
Carex nebrascensis	3	Carex praegracilis	2
Epilobium ciliatum	1	Glyceria grandis	2
Mentha arvensis	1	Phalaris arundinacea	2
Salix drummondiana	3	Scirpus microcarpus	2

Comments:

Community # 5 Community Type: Populus angustifolia /

Species	Cover class	Species	Cover class
Agrostis stolonifera	2	Beckmannia syzigachne	1
Carex aquatilis	1	Carex rostrata	1
Cirsium arvense	1	Glyceria grandis	3
Lycopus asper	1	Mentha arvensis	1
Phleum pratense	2	Populus angustifolia	5
Scirpus microcarpus	1		

Comments:

Community # 6 Community Type: Beckmannia syzigachne /

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alisma gramineum	2
Beckmannia syzigachne	3	Epilobium ciliatum	1
Juncus bufonius	1	Juncus effusus	1
Plantago major	1	Typha latifolia	2

Comments:

Community # 7 Community Type: Transitional Open Water /

Species	Cover class	Species	Cover class
Alisma gramineum	0	Carex rostrata	0
Transitional Open Water	5		

Comments:

VEGETATION TRANSECTS

Easton		Da	te: 25/2010 9:24:46 AM			
Transect Number: 1	ber: 1 Compass Direction from Start: 5					
Interval Data:						
Ending Station	52	Community Type:	Chenopodium spp / Phleum	pratense		
Species		Cover class	Species	Cover clas		
Bare Ground		4	Brassica kaber	;		
Bromus japonicus		1	Carum carvi			
Chenopodium album		2	Melilotus officinalis	•		
Phleum pratense		2	Plantago major	•		
Stellaria graminea		0	Taraxacum officinale			
Thlaspi arvense		1	Trifolium pratense			
Ending Station	70	Community Type:	Beckmannia syzigachne /			
Species		Cover class	Species	Cover clas		
Bare Ground		4	Beckmannia syzigachne			
Juncus bufonius		1				
Ending Station	97	Community Type:	Transitional open water /			
Species		Cover class	Species	Cover clas		
Shallow Water		5				
Ending Station	128	Community Type:	Beckmannia syzigachne /			
Species		Cover class	Species	Cover clas		
Alisma gramineum		1	Bare Ground	;		
Beckmannia syzigachne		4				
Ending Station	105	Community Type:	Chenopodium spp / Phleum	pratense		
Species Species	100	Cover class	Species	Cover clas		
-			•	OOVCI CIAS		
Brassica kaber		1	Carum carvi			
Chenopodium album		2	Convolvulus arvensis			
Helianthus annuus		1	Phleum pratense	•		
Poa pratensis		2	Thlaspi arvense			
Ending Station	262	Community Type:	Beckmannia syzigachne /			
Species		Cover class	Species	Cover clas		
Bare Ground		5	Beckmannia syzigachne			
Juncus bufonius		1	Melilotus officinalis			
Phleum pratense		1	Triglochin maritimum	•		

Ending Station	471	Community Type:	Chenopodium spp / Phleum	pratense
Species		Cover class	Species	Cover class
Alopecurus geniculatus		1	Bare Ground	3
Beckmannia syzigachne		1	Carum carvi	1
Chenopodium album		2	Cirsium arvense	0
Lycopus asper		1	Melilotus officinalis	1
Mimulus guttatus		0	Phleum pratense	1
Plantago major		1	Taraxacum officinale	1
Trifolium pratense		1		
Ending Station	496	Community Type:	Beckmannia syzigachne /	
Species		Cover class	Species	Cover class
Bare Ground		4	Beckmannia syzigachne	4
Chenopodium album		1	Juncus bufonius	1
Phleum pratense		2	Trifolium repens	1
Ending Station	547	Community Type:	Chenopodium spp / Phleum	pratense
Species		Cover class	Species	Cover class
Agrostis stolonifera		2	Brassica kaber	1
Carum carvi		1	Chenopodium album	1
Cirsium arvense		1	Melilotus officinalis	2
Phleum pratense		5	Poa pratensis	2
Thlaspi arvense		1		
Ending Station	703	Community Type:	Beckmannia syzigachne /	
Species		Cover class	Species	Cover class
Beckmannia syzigachne		4	Carum carvi	2
Plantago major		1	Rumex crispus	1
Taraxacum officinale		1	Trifolium pratense	1
Ending Station	1032	Community Type:	Chenopodium spp / Phleum	pratense
Species		Cover class	Species	Cover class
Amaranthus retroflexus		0	Bromus marginatus	1
Carum carvi		1	Chenopodium album	2
Cirsium arvense		0	Convolvulus arvensis	0
Descurainia sophia		0	Equisetum arvense	0
Equisetum hyemale		0	Melilotus officinalis	1
Phleum pratense		3	Thlaspi arvense	1
Trifolium repens		1		
Ending Station	1072	Community Type:	Phleum pratense / Poa prate	nsis
Species		Cover class	Species	Cover class
Bromus inermis		3	Cirsium arvense	0
Phleum pratense				
i illoani pratorioo		5	B-5	

Interval Data: 17 Community Type: Carex spp / **Ending Station** Cover class Cover class **Species Species** 2 Carex nebrascensis 3 Agrostis stolonifera Carex rostrata 5 Salix exigua 1 1 Scirpus microcarpus 44 Community Type: Phleum pratense / Poa pratensis **Ending Station Species** Cover class Species Cover class 2 Agrostis stolonifera Phleum pratense 5 Plantago major 1 Poa pratensis 2 Trifolium pratense 1 59 Community Type: Beckmannia syzigachne / **Ending Station** Cover class **Species** Cover class **Species** Bare Ground 3 Beckmannia syzigachne Juncus bufonius 1 Salix drummondiana 0 1 Typha latifolia 118 Community Type: Phleum pratense / Poa pratensis **Ending Station** Cover class Cover class **Species Species** 1 Bromus marginatus 1 Chenopodium album Cirsium vulgare Lycopus asper 1 1 2 5 Melilotus officinalis Phleum pratense 1 Trifolium pratense 1 Thlaspi arvense Trifolium repens 172 Community Type: Beckmannia syzigachne / **Ending Station** Cover class **Species** Cover class **Species** Agrostis stolonifera 2 Beckmannia syzigachne 5 Juncus bufonius 1 0 Salix drummondiana 298 Community Type: Chenopodium spp / Phleum pratense **Ending Station** Cover class **Cover class Species** Species 2 Brassica kaber 2 Carum carvi Chenopodium leptophyllum Chenopodium album 1 2 3 Phleum pratense Thlaspi arvense 2 Trifolium pratense

Compass Direction from Start: <u>180</u>

Transect Number: 2

Ending Station	328	Community Type:	Beckmannia syzigachne /	
Species		Cover class	Species	Cover class
Bare Ground		2	Beckmannia syzigachne	3
Bromus marginatus		1	Thlaspi arvense	1
Ending Station	380	Community Type:	Phleum pratense / Poa prate	nsis
Species		Cover class	Species	Cover class
Cirsium arvense		1	Phleum pratense	4
Poa pratensis		3		
Ending Station	885	Community Type:	Chenopodium spp / Phleum	pratense
Species		Cover class	Species	Cover class
Brassica kaber		1	Bromus inermis	1
Carum carvi		1	Chenopodium album	2
Cirsium arvense		1	Cirsium vulgare	0
Equisetum hyemale		0	Helianthus annuus	0
Melilotus officinalis		1	Phleum pratense	2
Plantago major		1	Thlaspi arvense	1
Trifolium pratense		2		
Ending Station	1285	Community Type:	Beckmannia syzigachne /	
Species		Cover class	Species	Cover class
Species Agrostis stolonifera		Cover class	Species Bare Ground	Cover class
•	e		•	_
Agrostis stolonifera	е	1	Bare Ground	_
Agrostis stolonifera Beckmannia syzigachn	e	1 4	Bare Ground Carum carvi	2
Agrostis stolonifera Beckmannia syzigachne Cirsium arvense	e	1 4 0	Bare Ground Carum carvi Convolvulus arvensis	2
Agrostis stolonifera Beckmannia syzigachne Cirsium arvense Cornus stolonifera	e	1 4 0	Bare Ground Carum carvi Convolvulus arvensis Juncus bufonius	2 1 0 1
Agrostis stolonifera Beckmannia syzigachne Cirsium arvense Cornus stolonifera Melilotus officinalis	e	1 4 0 0	Bare Ground Carum carvi Convolvulus arvensis Juncus bufonius Mimulus guttatus	2 1 0 1
Agrostis stolonifera Beckmannia syzigachne Cirsium arvense Cornus stolonifera Melilotus officinalis Plantago major	e 1321	1 4 0 0 1 1	Bare Ground Carum carvi Convolvulus arvensis Juncus bufonius Mimulus guttatus Polypogon monspeliensis Taraxacum officinale	2 1 0 1 0 0
Agrostis stolonifera Beckmannia syzigachni Cirsium arvense Cornus stolonifera Melilotus officinalis Plantago major Potentilla gracilis		1 4 0 0 1 1 0	Bare Ground Carum carvi Convolvulus arvensis Juncus bufonius Mimulus guttatus Polypogon monspeliensis Taraxacum officinale	2 1 0 1 0 0
Agrostis stolonifera Beckmannia syzigachnic Cirsium arvense Cornus stolonifera Melilotus officinalis Plantago major Potentilla gracilis Ending Station		1 4 0 0 1 1 0 Community Type:	Bare Ground Carum carvi Convolvulus arvensis Juncus bufonius Mimulus guttatus Polypogon monspeliensis Taraxacum officinale Chenopodium spp / Phleum	2 1 0 1 0 0 1 pratense
Agrostis stolonifera Beckmannia syzigachnic Cirsium arvense Cornus stolonifera Melilotus officinalis Plantago major Potentilla gracilis Ending Station Species		1 4 0 0 1 1 0 Community Type:	Bare Ground Carum carvi Convolvulus arvensis Juncus bufonius Mimulus guttatus Polypogon monspeliensis Taraxacum officinale Chenopodium spp / Phleum Species	2 1 0 1 0 0 1 pratense
Agrostis stolonifera Beckmannia syzigachne Cirsium arvense Cornus stolonifera Melilotus officinalis Plantago major Potentilla gracilis Ending Station Species Agropyron repens	1321	1 4 0 0 1 1 1 0 Community Type: Cover class	Bare Ground Carum carvi Convolvulus arvensis Juncus bufonius Mimulus guttatus Polypogon monspeliensis Taraxacum officinale Chenopodium spp / Phleum Species Bare Ground	2 1 0 1 0 0 1 pratense
Agrostis stolonifera Beckmannia syzigachne Cirsium arvense Cornus stolonifera Melilotus officinalis Plantago major Potentilla gracilis Ending Station Species Agropyron repens Brassica kaber	1321	1 4 0 0 1 1 0 Community Type: Cover class 1 1	Bare Ground Carum carvi Convolvulus arvensis Juncus bufonius Mimulus guttatus Polypogon monspeliensis Taraxacum officinale Chenopodium spp / Phleum Species Bare Ground Chenopodium album	2 1 0 1 0 0 1 pratense
Agrostis stolonifera Beckmannia syzigachne Cirsium arvense Cornus stolonifera Melilotus officinalis Plantago major Potentilla gracilis Ending Station Species Agropyron repens Brassica kaber Chenopodium leptophy	1321	1 4 0 0 1 1 1 0 Community Type: Cover class 1 1 1	Bare Ground Carum carvi Convolvulus arvensis Juncus bufonius Mimulus guttatus Polypogon monspeliensis Taraxacum officinale Chenopodium spp / Phleum Species Bare Ground Chenopodium album Phleum pratense	2 1 0 1 0 0 1 pratense Cover class 5 1 1
Agrostis stolonifera Beckmannia syzigachne Cirsium arvense Cornus stolonifera Melilotus officinalis Plantago major Potentilla gracilis Ending Station Species Agropyron repens Brassica kaber Chenopodium leptophy Thlaspi arvense	1321 llum	1 4 0 0 1 1 0 Community Type: Cover class 1 1 1	Bare Ground Carum carvi Convolvulus arvensis Juncus bufonius Mimulus guttatus Polypogon monspeliensis Taraxacum officinale Chenopodium spp / Phleum Species Bare Ground Chenopodium album Phleum pratense Trifolium repens	2 1 0 1 0 0 1 pratense Cover class 5 1 1
Agrostis stolonifera Beckmannia syzigachne Cirsium arvense Cornus stolonifera Melilotus officinalis Plantago major Potentilla gracilis Ending Station Species Agropyron repens Brassica kaber Chenopodium leptophy Thlaspi arvense Ending Station	1321 llum	1 4 0 0 1 1 1 0 Community Type: Cover class 1 1 1 1 1 Community Type:	Bare Ground Carum carvi Convolvulus arvensis Juncus bufonius Mimulus guttatus Polypogon monspeliensis Taraxacum officinale Chenopodium spp / Phleum Species Bare Ground Chenopodium album Phleum pratense Trifolium repens Phleum pratense / Poa prate	2 1 0 1 0 0 1 pratense Cover class 5 1 1 1 1
Agrostis stolonifera Beckmannia syzigachne Cirsium arvense Cornus stolonifera Melilotus officinalis Plantago major Potentilla gracilis Ending Station Species Agropyron repens Brassica kaber Chenopodium leptophy Thlaspi arvense Ending Station Species	1321 llum	1 4 0 0 1 1 1 0 Community Type: Cover class 1 1 1 1 Community Type:	Bare Ground Carum carvi Convolvulus arvensis Juncus bufonius Mimulus guttatus Polypogon monspeliensis Taraxacum officinale Chenopodium spp / Phleum Species Bare Ground Chenopodium album Phleum pratense Trifolium repens Phleum pratense / Poa prate Species	2 1 0 1 0 1 0 1 pratense Cover class 5 1 1 1 1 Cover class

Transect Notes:

Interval Data:				
Ending Station	53	Community Type:	Phleum pratense / Poa prate	nsis
Species		Cover class	Species	Cover class
Bromus inermis		4	Equisetum arvense	1
Phleum pratense		5	Poa pratensis	2
Trifolium pratense		1		
Ending Station	177	Community Type:	Chenopodium spp / Phleum p	pratense
Species		Cover class	Species	Cover class
Bare Ground		4	Brassica kaber	2
Bromus ciliatus		1	Carum carvi	1
Chenopodium album		2	Equisetum hyemale	1
Phleum pratense		2	Taraxacum officinale	1
Thlaspi arvense		1		
Ending Station	208	Community Type:	Beckmannia syzigachne /	
Species		Cover class	Species	Cover class
Bare Ground		4	Beckmannia syzigachne	4
Brassica kaber		1	Phleum pratense	1
Ending Station	250	Community Type:	Chenopodium spp / Phleum p	pratense
Species		Cover class	Species	Cover class
Alnus incana		0	Bare Ground	3
Brassica kaber		1	Carum carvi	1
Chenopodium album		2	Helianthus annuus	1
Melilotus officinalis		2	Phleum pratense	2
Thlaspi arvense		1	Trifolium pratense	2
Ending Station	270	Community Type:	Phleum pratense / Poa prate	nsis
Species		Cover class	Species	Cover class
Brassica kaber		1	Carum carvi	1
Chenopodium album		1	Medicago lupulina	1
Phleum pratense		2	Poa pratensis	2
Taraxacum officinale		1	Thlaspi arvense	3
Ending Station	284	Community Type:	Beckmannia syzigachne /	
Species		Cover class	Species	Cover class
Bare Ground		4	Beckmannia syzigachne	3
Carum carvi		1	Salix exigua	0
Thlaspi arvense		1		

Transect Number: 3 Compass Direction from Start: 95

Ending Station	345	Community Type:	Phleum pratense / Poa prater	nsis
Species		Cover class	Species	Cover class
Carum carvi		3	Chenopodium album	1
Helianthus annuus		1	Phleum pratense	5
Poa pratensis		2	Taraxacum officinale	1
Thlaspi arvense		1	Trifolium pratense	2
Ending Station	374	Community Type:	Chenopodium spp / Phleum p	oratense
Species		Cover class	Species	Cover class
Bare Ground		2	Brassica kaber	2
Carum carvi		2	Chenopodium album	2
Chenopodium leptophyllu	ım	1	Melilotus officinalis	2
Phleum pratense		2		
Ending Station	447	Community Type:	Beckmannia syzigachne /	
Species		Cover class	Species	Cover class
Beckmannia syzigachne		5	Carum carvi	1
Juncus bufonius		1	Trifolium pratense	2
Ending Station	490	Community Type:	Chenopodium spp / Phleum p	oratense
				_
Species		Cover class	Species	Cover class
Species Bare Ground		Cover class	Species Brassica kaber	Cover class
•			•	
Bare Ground		3	Brassica kaber	
Bare Ground Carum carvi		3 1	Brassica kaber Chenopodium album	1
Bare Ground Carum carvi Phleum pratense	710	3 1 2	Brassica kaber Chenopodium album Plantago major	1 1 1
Bare Ground Carum carvi Phleum pratense Trifolium pratense	710	3 1 2 2	Brassica kaber Chenopodium album Plantago major Trifolium repens	1 1 1
Bare Ground Carum carvi Phleum pratense Trifolium pratense Ending Station	710	3 1 2 2 Community Type:	Brassica kaber Chenopodium album Plantago major Trifolium repens Beckmannia syzigachne /	1 1 1
Bare Ground Carum carvi Phleum pratense Trifolium pratense Ending Station Species	710	3 1 2 2 Community Type: Cover class	Brassica kaber Chenopodium album Plantago major Trifolium repens Beckmannia syzigachne / Species	1 1 1 1 Cover class
Bare Ground Carum carvi Phleum pratense Trifolium pratense Ending Station Species Bare Ground	710	3 1 2 2 Community Type: Cover class	Brassica kaber Chenopodium album Plantago major Trifolium repens Beckmannia syzigachne / Species Beckmannia syzigachne	1 1 1 1 Cover class
Bare Ground Carum carvi Phleum pratense Trifolium pratense Ending Station Species Bare Ground Brassica kaber	710	3 1 2 2 Community Type: Cover class 2 1	Brassica kaber Chenopodium album Plantago major Trifolium repens Beckmannia syzigachne / Species Beckmannia syzigachne Carum carvi	1 1 1 1 Cover class 4 1
Bare Ground Carum carvi Phleum pratense Trifolium pratense Ending Station Species Bare Ground Brassica kaber Chenopodium album	710	3 1 2 2 Community Type: Cover class 2 1 1	Brassica kaber Chenopodium album Plantago major Trifolium repens Beckmannia syzigachne / Species Beckmannia syzigachne Carum carvi Equisetum hyemale	1 1 1 1 Cover class 4 1
Bare Ground Carum carvi Phleum pratense Trifolium pratense Ending Station Species Bare Ground Brassica kaber Chenopodium album Juncus bufonius	710 751	3 1 2 2 2 Community Type: Cover class 2 1 1 1 1	Brassica kaber Chenopodium album Plantago major Trifolium repens Beckmannia syzigachne / Species Beckmannia syzigachne Carum carvi Equisetum hyemale Melilotus officinalis	1 1 1 1 1 Cover class 4 1 1 1 2
Bare Ground Carum carvi Phleum pratense Trifolium pratense Ending Station Species Bare Ground Brassica kaber Chenopodium album Juncus bufonius Plantago major		3 1 2 2 2 Community Type: Cover class 2 1 1 1 1	Brassica kaber Chenopodium album Plantago major Trifolium repens Beckmannia syzigachne / Species Beckmannia syzigachne Carum carvi Equisetum hyemale Melilotus officinalis Trifolium pratense	1 1 1 1 1 Cover class 4 1 1 1 2
Bare Ground Carum carvi Phleum pratense Trifolium pratense Ending Station Species Bare Ground Brassica kaber Chenopodium album Juncus bufonius Plantago major Ending Station		3 1 2 2 2 Community Type: Cover class 2 1 1 1 1 1 Community Type:	Brassica kaber Chenopodium album Plantago major Trifolium repens Beckmannia syzigachne / Species Beckmannia syzigachne Carum carvi Equisetum hyemale Melilotus officinalis Trifolium pratense Phleum pratense / Poa pratei	1 1 1 1 2
Bare Ground Carum carvi Phleum pratense Trifolium pratense Ending Station Species Bare Ground Brassica kaber Chenopodium album Juncus bufonius Plantago major Ending Station Species		3 1 2 2 2 Community Type: Cover class 2 1 1 1 1 Community Type: Cover class	Brassica kaber Chenopodium album Plantago major Trifolium repens Beckmannia syzigachne / Species Beckmannia syzigachne Carum carvi Equisetum hyemale Melilotus officinalis Trifolium pratense Phleum pratense / Poa prate	1 1 1 1 1 1 1 1 1 1 2 nsis Cover class Cover class
Bare Ground Carum carvi Phleum pratense Trifolium pratense Ending Station Species Bare Ground Brassica kaber Chenopodium album Juncus bufonius Plantago major Ending Station Species Agrostis stolonifera		3 1 2 2 Community Type: Cover class 2 1 1 1 1 Community Type: Cover class	Brassica kaber Chenopodium album Plantago major Trifolium repens Beckmannia syzigachne / Species Beckmannia syzigachne Carum carvi Equisetum hyemale Melilotus officinalis Trifolium pratense Phleum pratense / Poa prate	1 1 1 1 1 1 1 1 1 2 nsis Cover class Cover class 2

Transect Notes:

PLANTED WOODY VEGETATION SURVIVAL

Easton

Planting Type	#Planted	#Alive Notes
Red-osier dogwood	250	Good survival, most observed supported green leaves
Sandbar Willow	250	High percent survival (>80%)
Thinleaf alder	500	Survival approx 75% of observed plantings
Willow cuttings	200	Greater than 80% observed were leafed out and surviving

Comments

No systematic sampling method was employed in evaluating planted woody vegetation survival.

Easton

WILDLIFE

Birds	
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Were man-made nesting structures installed?	Yes
If yes, type of structure: Bluebird boxes	
How many?	
Are the nesting structures being used?	Yes
Do the nesting structures need repairs?	No
Nesting Structure Comments:	

Species	#Observed	Behavior	Habitat	
American Crow	3	L		
American Goldfinch	2			
Bald Eagle	2			
Bank Swallow	3			
Black-billed Magpie	2	L		
Cedar Waxwing	1		FO	
Eastern Kingbird	1		SS	
Golden Eagle	1	FO		
Gray Catbird	2	L	SS	
Killdeer	13		MF	
Lesser Yellowlegs	1		MF	
Mourning Dove	2	FO		
Northern Flicker	1			
Northern Harrier	1	FO		
Sandhill Crane	3	FO		
Tree Swallow	6			
Yellow Warbler	2		SS	
Bird Comments				

BEHAVIOR CODES

 $BP = One of a \underline{breeding pair } BD = \underline{Breeding display } F = \underline{Foraging } FO = \underline{Flyover } L = \underline{Loafing } N = \underline{Nesting }$

HABITAT CODES

 $\mathbf{AB} = \text{Aquatic bed}$ $\mathbf{SS} = \text{Scrub/Shrub}$ $\mathbf{FO} = \text{Forested}$ $\mathbf{UP} = \text{Upland buffer } \mathbf{I} = \text{Island}$

WM = Wet meadow **MA** = Marsh **US** = Unconsolidated shore **MF** = Mud Flat **OW** = Open Water

Mammals and Herptiles

Species	# Observed	Tracks	Scat	Burrows	Comments
Columbia Spotted Frog	6	No	No	No	
Moose		Yes	No	No	
Plains Gartersnake	1	No	No	No	
Raccoon		Yes	No	No	
Richardson's Ground Squirrel		No	No	No	
Striped Skunk		No	No	No	
White-tailed Deer	3	No	No	No	

Wildlife Comments:

Easton

PHOTOGRAPHS

Take photographs of the following permanent reference points listed in the check list below. Record the direction of the photograph using a compass. When at the site for the first time, establish a permanent reference point by setting a ½ inch rebar or fencepost extending 2-3 feet above ground. Survey the location with a resource grade GPS and mark the location on the aerial photograph.

Photograph Checklist:

- ✓ One photograph for each of the four cardinal directions surrounding the wetland.
- At least one photograph showing upland use surrounding the wetland. If more than one upland exists then take additional photographs.
- At least one photograph showing the buffer surrounding the wetland.
- One photograph from each end of the vegetation transect, showing the transect.

Photo #	Latitude	Longitude	Bearing	Description
6282			190	pp1
6285			250	pp1
6288			300	pp1
6292			200	pp2, 6292-95
6298			140	pp3, 6298-6302
6306			170	pp4a, Shields River bank
6310			20	pp4b, Shields River bank
6313			105	pp5, 6313-6319, 30-180 deg
6320			0	pp6, 6320-6323
6331			340	pp7, 6331-6336, 340-110 deg
6340			5	Veg tran 1, start
6346			185	Veg tran 1, end
6347			180	Veg tran 2, start
6348			0	Veg tran 2, end
6350			95	Veg tran 3, start
6351			265	Veg tran 3, end

Comments:

ADDITIONAL ITEMS CHECKLIST

	Hydrology
✓ ✓ lines,	Map emergent vegetation/open water boundary on aerial photos. Observe extent of surface water. Look for evidence of past surface water elevations (e.g. drift vegetation staining, erosion, etc).
	Photos
\ \ \ \	One photo from the wetland toward each of the four cardinal directions One photo showing upland use surrounding the wetland. One photo showing the buffer around the wetland One photo from each end of each vegetation transect, toward the transect
	Vegetation
☑ Ma	ap vegetation community boundaries
✓ Co	mplete Vegetation Transects
	Soils
✓ As	sess soils
	Wetland Delineations
✓	Delineate wetlands according to applicable USACE protocol (1987 form or
Suppi ✓	ement) Delineate wetland – upland boundary onto aerial photograph.
Wetla	nd Delineation Comments
	Functional Assessments
✓ forms	Complete and attach full MDT Montana Wetland Assessment Method field .
Funct	ional Assessment Comments:

Maintenance

Were man-made nesting structure installed at this site? Yes
If yes, do they need to be repaired? No
If yes, describe the problems below and indicate if any actions were taken to remedy the problems
Were man-made structures built or installed to impound water or control water flow
into or out of the wetland? Yes
If yes, are the structures working properly and in good working order? Yes
If no, describe the problems below.
No repair needs identified

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Easton			City/County: F	Park			Sam	npling Date	e: 8/25	/2010
Applicant/Owner: MDT			, , , –		Sta	ate: MT	 Sam	nplina Poin	t:E-1	
Investigator(s): B. Sandefur			Section, Town	nship, Rand		32	T 4N	R 91		
Flat						one): rollir	ng	٠		
			`		,	,	63872666		,	
Soil Map Unit Name:				-			assification			
Are climatic / hydrologic conditions on the				No [\ (If		n in Remar			
Are Vegetation, Soil, or Hy							ces" prese		✓ N/	
Are Vegetation, Soil, or Hy							inswers in			<u> </u>
	••	• .		,		•		,		4_
SUMMARY OF FINDINGS – Atta	<u> </u>		3 sampling	point io	cation	s, trans	ects, im	portant	reature	s, etc.
Hydrophytic Vegetation Present? Hydric Soil Present?	Yes No		Is the	Sampled A	Area					
Wetland Hydrology Present?	Yes No	$\overline{}$		a Wetland		Yes		No 🔽	<u> </u>	
Remarks:	100 110									
VEGETATION III										
VEGETATION – Use scientific r	names of plant		5	P						
Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant I Species?				t workshee			
1. 0		0					nant Specie ACW, or FA		0	(A)
2. 0		0)	Total N	umbaraf	Dominant			
3. 0		0)		s Across A			2	(B)
4. 0		0)	Percen	t of Domin	nant Specie	30	•	
Sapling/Shrub Stratum (Plot size: 0	,	0	= Total Cove	er			ACW, or FA		0	(A/B)
1. 0		0)	Prevale	ence Inde	x workshe	et:		
2. 0		0)	To	tal % Cov	er of:		ltiply by:	_
3. 0		0	- -)	OBL sp	_	0	_ x1=_	0	_
4. 0		0)		species _		_ x 2 = =		=
5. 0		0)	FAC sp	_	30 85	_ x 3 = =		=
Eft.		0	_ = Total Cove	er	UPL sp	species _	0	- x 4 = _ x 5 = _	0	
Herb Stratum (Plot size: 5ft Populus tremula ssp. tremuloides) i	10		FAC+		n Totals:	115	_	430	(B)
Poa pratensis		40		FACU+				•	3.73913	_ (D)
Phleum pratense		25		ACU			Index = B getation In	/A =		
4 Trifolium pratense		20		FACU		•	st for Hydro			
5. Agrostis stolonifera		20		FAC+	_		ce Test is >		getation	
6. 0		0)	$\overline{}$		ce Index is			
7. 0		0)	4 -	Morpholo	gical Adap	tations¹ (P	rovide sur	porting
8. <u>0</u>		0					emarks or		ate sheet)	1
9. 0		0	$-\frac{\Box}{\Box}$		\equiv		Non-Vascu			
10.0		0					Hydrophyti 			
11.0							lric soil and s disturbed			must
Woody Vine Stratum (Plot size: 0)	115	_= Total Cove	r	•	•				
1.0		0	O)	Hydrop	hytic				
2. 0		0	0		Vegeta	tion	[
	0	0	_= Total Cove	r	Preser	ıt?	Yes	<u> </u>		
% Bare Ground in Herb Stratum										
Remarks:										
US Army Corps of Engineers					Weste	rn Mounta	ains, Valley	s, and Coa	ast – Vers	ion 2.0

SOIL										Sampling Point: E-1
Profile Desc	ription: (Describe	to the depth	needed to	docur	nent the i	ndicator	or confirm	n the absence	of indicators.)
Depth		Matrix	•			x Feature				,
(inches)	Color	(moist)	%	Color (mo		%	_Type ¹	_Loc ²	Texture	Remarks
0-3	10YR	3/2	100						Silt Loam	Many fine roots
3-12	10YR	4/2	100						Clay Loam	Dry, friable
						-				
¹Type: C=Co								d Sand G		cation: PL=Pore Lining, M=Matrix.
Hydric Soil I		s: (Applic	abie to ali Li	¬ ′			ea.)			ors for Problematic Hydric Soils ³ :
Histosol	, ,	0)	<u>_</u>	∐ Sandy F					_	m Muck (A10)
Black His	oipedon (A	(2)	<u> </u>	Stripped			1) /avcant	t MLRA 1)		d Parent Material (TF2) y Shallow Dark Surface (TF12)
	n Sulfide	(A4)	Ť	_	-	Matrix (F2		I WILKA I,		er (Explain in Remarks)
		ark Surfac	e (A11)	Deplete			.,			er (Explain in Normano)
_ :	ırk Surfac			- .		rface (F6)			³ Indicate	ors of hydrophytic vegetation and
	lucky Min			Deplete	d Dark s	Surface (F	7)			and hydrology must be present,
Sandy G	leyed Ma	trix (S4)		Redox [Depress	ions (F8)			unles	ss disturbed or problematic.
Restrictive L	ayer (if p	resent):								
Туре:				_						
Depth (inc	ches):								Hydric Soi	Present? Yes No
Remarks:										
HYDROLO	GY									
Wetland Hyd	rology Ir	ndicators:								
Primary Indic	ators (mir	nimum of o	ne required;	check all th	at apply	y)			Seco	ndary Indicators (2 or more required)
Surface \	Water (A1)		Wa	iter-Stai	ined Leav	es (B9) (e	xcept	v	Vater-Stained Leaves (B9) (MLRA 1, 2,
High Wa	ter Table	(A2)			MLRA	1, 2, 4A, a	and 4B)	•		4A, and 4B)
Saturatio		. ,			lt Crust		•			Prainage Pattems (B10)
	arks (B1)					vertebrate	s (B13)			Ory-Season Water Table (C2)
	t Deposit	s (B2)		Hy	drogen	Sulfide O	dor (C1)		s	Saturation Visible on Aerial Imagery (C9)
	osits (B3)				-			Living Roo		Seomorphic Position (D2)
Algal Ma	t or Crust	(B4)					ed Iron (C4			Shallow Aquitard (D3)
	osits (B5)			Re	cent Iro	n Reducti	on in Tille	d Soils (Cf		AC-Neutral Test (D5)
Surface \$				Stu	inted or	Stressed	Plants (D	1) (LRR A		Raised Ant Mounds (D6) (LRR A)
Inundatio	n Visible	on Aerial I	magery (B7)	Oth	ner (Exp	olain in Re	marks)		F	rost-Heave Hummocks (D7)
Sparsely	Vegetate	d Concave	Surface (B8)						
Field Observ	ations:									
Surface Wate	er Present	:? Y	es 🗆 No	✓ De	epth (inc	ches):				
Water Table	Present?	Υ	es 🗌 No							
Saturation Pr	esent?	Y	es No						and Hydrolog	y Present? Yes No
(includes cap Describe Rec			gauge, moni	toring well,	aerial p	ohotos, pr	evious ins	pections),	if available:	
D										
Remarks: No indicators	9									
i vo iriuloalois	J									

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Spain MT Semplang Point E-2	Project/Site: Easton			City/County: Park			Samp	ling Date:	8/25/	/2010
Section Towership, Range S 32 T 4N R 9E				,	State	MT	Samp	lina Point: E	-2	
				Section Township Ra	_					
Solid Name Late					_	_{e)} · rolling		Slo	ne (%):	0
We limit Name New Collect Name Nam										
No										
Are "Normal Circumstances" Yes No No No No No No No N										
Summary Summ									Ne	
Summary OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.			•						NO	'
Hydrophytic Vegetation Present? Yes	-	-	-		,	_		•	_4	4_
Hydro Soil Present? Yes Ves No		<u> </u>		sampling point	locations,	transec	ts, imp	ortant re	atures	s, etc.
Wetdand Hydrology Present? Yes No				Is the Sample	d Area					
Note	•					Yes	<u>✓</u> N	lo	_	
VEGETATION - Use scientific names of plants. Commonweal Indicator Species Status Commonweal Indicator Species Status Commonweal Indicator Species Status Commonweal Indicator Species Status Commonweal Indicator Species Status Commonweal Indicator Species Status Commonweal Indicator Species Commonweal Indicator Species Commonweal Indicator Species Commonweal Indicator Commonweal Indi		100 110 _								
Absolute Species Statum Command Indicator Species Statum Command Species Statum Species Statum Species Statum Species Statum Species Statum										
Absolute Species Statum Flot size O										
Number of Dominant Species 1	VEGETATION – Use scientific	names of plants								
1. 0	Tree Stratum (Plot size: 0	Δ								
2	, ,								1	(A)
3 0	0		0	0						(')
4. 0	- 0		Λ	0					1	(B)
That Are OBL, FACW, or FAC: No (A/B)	4. 0		0	0	'					,
1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0	_	0	_ = Total Cover					100	(A/B)
10)	0	\Box 0	Prevalenc	ce Index v	vorkshee	t:		
3 0				<u> </u>	Total	% Cover o	of:	Multip	ly by:	_
4. 0	0				OBL spec	ies	110	x 1 =	110	_
Solution Stratum Plot size: 5ft 1	0		^		FACW sp	ecies		x 2 =	0	_
Herb Stratum (Plot size: 5ft 1 2 2 2 2 2 2 2 2 2	₅ 0		0							_
Carex rostrata var utriculata 60			0	= Total Cover						_
2 Carex aquatilis 10	Herb Stratum (Plot size: 5ft)	60	ODI			110			— (D)
Scirpus maritimus	0				- Column I	otals:		(A)		⊟ (B)
Scirpus pungens 5	O-i									_
Salix exigua 6. Glyceria striata 10	U					_				
6. Glyceria striata 10	Calinaviana				I —				tation	
7. 0	Channin stricts		10	OBL	1 声 2					
8. 0	0		0	0	- I				/ide sun	nortina
10.0 11.0 Woody Vine Stratum (Plot size: 0 1.0 2.0 Bare Ground in Herb Stratum 0 O O O O O O O O O O O O O O O O O O			0	0	da	ata in Rema	arks or on	a separate	sheet)	porting
11.0				0	_ 🖳 5 - W	etland Nor	n-Vascula	r Plants ¹		
Woody Vine Stratum (Plot size: 0					-			-		
Woody Vine Stratum (Plot size: 0	11.0			0						nust
1. 0 2. 0 0 0 0 Vegetation Present? Yes No No Remarks:	Wasdi Vina Stratura (Blataina 0	_	110	_= Total Cover	be presen	it, umess u	iistui bed t	or problems		
2. 0		/	0	□ 0	11 1 - 1 1	41-				
% Bare Ground in Herb Stratum0 = Total Cover	-		0	0		on .	_		_	
% Bare Ground in Herb Stratum Remarks:	2.		0	= Total Cover			Yes	No_		
	% Bare Ground in Herb Stratum									
US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0	Remarks:									
US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0										
US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0										
	US Army Corps of Engineers				Western	Mountains	, Valleys,	and Coast	– Versi	on 2.0

SOIL								Sampling Point: E-2
Profile Desc	ription: (Describe	to the dept	h needed to docu	ment the ind	licator o	or confir	m the absence o	
Depth	Matrix		Redo	x Features				
(inches)	Color (moist)	%	Color (maist)	%	Type ¹	_Loc ²	Texture	Remarks
0-12	10YR 2/1	95	10YR 4/3	5	D	M	Clay Loam	
	-							
				-,,				
	oncentration, D=Dep					d Sand G		tion: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (Applic	able to all L	RRs, unless othe	rwise noted	.)		Indicators	s for Problematic Hydric Soils ³ :
<u> </u> Histosol		_	📕 Sandy Redox (Muck (A10)
	pipedon (A2)	=	Stripped Matrix					Parent Material (TF2)
	stic (A3)	_	Loamy Mucky I		(except	MLRA 1		Shallow Dark Surface (TF12)
	en Sulfide (A4)	_	Loamy Gleyed	. ,			Other	(Explain in Remarks)
	d Below Dark Surfac	ce (A11)	Depleted Matri	. ,			3	
	ark Surface (A12)	-	Redox Dark Su					of hydrophytic vegetation and
	Mucky Mineral (S1)	_	Depleted Dark					d hydrology must be present,
	Gleyed Matrix (S4)	_	Redox Depress	sions (F8)			unless	disturbed or problematic.
	Layer (if present):							
Туре:								
Depth (in	ches):						Hydric Soil P	resent? Yes 🔽 No 🔲
Remarks:								
HYDROLO	GY							
	drology Indicators:	<u> </u>						
_	cators (minimum of		check all that appl	v)			Second	ary Indicators (2 or more required)
	•	one regulied.			(DO) /	4		•
	Water (A1)			ined Leaves		cept		ter-Stained Leaves (B9) (MLRA 1, 2,
	iter Table (A2)			1, 2, 4A, and	3 4B)			4A, and 4B)
<u>✓</u> Saturati			Salt Crust					tinage Patterns (B10)
	larks (B1)			vertebrates (-Season Water Table (C2)
	nt Deposits (B2)			Sulfide Odor				uration Visible on Aerial Imagery (C9)
	oosits (B3)		Oxidized F	Rhizospheres	along L	_iving Ro	ots (C3) 📙 Ge	omorphic Position (D2)
	at or Crust (B4)			of Reduced I		-		allow Aquitard (D3)
Iron Dep	osits (B5)		Recent Iro	n Reduction	in Tilled	l Soils (C	6) <u> </u>	C-Neutral Test (D5)
Surface	Soil Cracks (B6)		Stunted or	Stressed PI	ants (D1	1) (LRR A	🗘) 💹 Rai	sed Ant Mounds (D6) (LRR A)
Inundati	on Visible on Aerial	Imagery (B7) Other (Ex	olain in Rema	arks)		Fro	st-Heave Hummocks (D7)
Sparsely	/ Vegetated Concav	e Surface (B	8)					
Field Obser	vations:							
Surface Wat	er Present? Y	es 🗆 N	o Depth (in	ches):				
Water Table	Present? Y	′es □ N	o V Depth (in					
Saturation P			o Depth (in			- Wet	land Hydrology	Present? Yes 🔽 No 🔲
(includes cap		~o <u>▼</u>	o Debui (III	oneaj		- AAGI	sand Hydrology	resent: 169 G 140 L
	corded Data (stream	n gauge, mor	nitoring well, aerial	photos, previ	ious insp	oections)	, if available:	
Remarks:								

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Easton			Citv/Countv:	Park			San	nolina Date	e: 8/25	/2010
Applicant/Owner: MDT			,		Sta	ate: MT	Sam	nolina Pair	nt E-3	
Investigator(s): B. Sandefur			Section Tov	vnshin Rai		32	T 4N			
Landform (hillslope, terrace, etc.): Fla						ne) rolli			Slope (%):	C
				•						
Soil Map Unit Name:					_ Long		assification			
Are climatic / hydrologic conditions on			_	l No						
Are Vegetation, Soil, o		-					ices" prese		✓ N/	
Are Vegetation, Soil, o		-					answers in	_		, <u> </u>
-				`		-		,		
SUMMARY OF FINDINGS – A		nowing	sampling	g point le	ocation	s, trans	ects, im	portant	teatures	s, etc.
Hydrophytic Vegetation Present?			ls the	Sampled	Δrea					
Hydric Soil Present? Wetland Hydrology Present?	Yes <u>✓</u> No Yes ✓ No			n a Wetlar		Yes		No 🔲		
Remarks:	Tes NO									
rtemante.										
VEGETATION - Use scientif	ic names of plants	S.								
Tree Stratum (Plot size: 30ft		Absolute	Dominant Species?		Domin	ance Tes	t workshe	et:		
1 Salix lasiandra		% Cover	Species?	FACW+			nant Specie ACW, or FA		3	(A)
2 Populus angustifolia		65		FACW				10.		. (^)
3. 0		0		0			Dominant All Strata:		3	(B)
4. 0		0		0						(3)
		90	_ = Total Co	ver			nant Specie ACW, or FA		100	(A/B)
Sapling/Shrub Stratum (Plot size: C	<u>'</u>)	0		0			ex workshe			(" -)
1.0		$\frac{0}{0}$		0			er of:		Itiply by:	
$\frac{2}{0}$		0		0	OBL sp		85	x 1 =	85	
3. 0				0	FACW	species	90	_ x 2 = _	180	
_ 0				0	FAC sp	ecies	25	_ x 3 = _	75	
5. 0		0	= Total Co		FACU:	species		_ x 4 = _	0	_
Herb Stratum (Plot size: 5ft)				UPL sp		0	_ x 5 = _	0	_
1. Glyceria striata		65		OBL	Column	Totals:	200	_ (A) =	340	(B)
2. Mentha arvensis		10		FAC	Р	revalence	Index = B	J/A =	1.7	
3. Carex rostrata var utriculata		20		OBL	Hydro	hytic Ve	getation In	dicators:		
4. Poa palustris		<u>15</u>		FAC 0	_ 1 -	Rapid Te	st for Hydr	ophytic Ve	getation	
J				0			ce Test is			
0				0			ce Index is			
7. 0 8. 0		$\frac{0}{0}$		0			gical Adap emarks or o			
9. 0		0		0			Non-Vascu			1
10.0		0		0			Hydrophyti			ain)
11.0		0		0			dric soil and			
		110	= Total Cov	er	be pres	ent, unles	ss disturbed	eldorq ro b	ematic.	
Woody Vine Stratum (Plot size: 0)		_							
$1.\frac{0}{0}$		0		0	Hydron					
2. 0				0	Vegeta Presen		Yes	✓ Nc	. .	
% Bare Ground in Herb Stratum	0	0	_= Total Cov	er/			· - •			
Remarks:					1					
0										
US Army Corps of Engineers					Weste	rn Mounta	ains, Valley	s, and Co	ast – Versi	ion 2.0

SOIL											Sampling Point: E-3
Profile Desc	cription: (D	escribe t	o the dep	th need	ed to docu	ment the in	dicator	or conf	firm the abs	sence	of indicators.)
Depth		Matrix			Red	ox Features			_		
(inches)	Color (n		%	Colo	r (moist)	%	Type ¹	_Loc ²	Text	ure	Remarks
0-6	10YR	2/1	100						Silt Loa	am	
6-12	10YR	2/2	95	10YR	3/4	5	С	M	Silty Clay	Loam	
									_		
Type: C=C	oncentration	D=Deple	etion RM:		d Matrix C	S=Covered	or Coate	ed Sand	Grains	 2Loc	ation: PL=Pore Lining, M=Matrix.
Hydric Soil											rs for Problematic Hydric Soils ³ :
Histosol	(A1)			☐ Sar	ndy Redox	(S5)] 2 cm	Muck (A10)
Histic E	pipedon (A2))		$\overline{}$	pped Matri:					Red	Parent Material (TF2)
Black H	istic (A3)			Loa	my Mucky	Mineral (F1)	(except	t MLRA	. 1)	Very	Shallow Dark Surface (TF12)
_ · ·	en Sulfide (A	,		Loa	my Gleyed	Matrix (F2)				Othe	r (Explain in Remarks)
	d Below Dar		(A11)		eted Matr						
	ark Surface (=	dox Dark S				³ In		rs of hydrophytic vegetation and
	Aucky Minera					Surface (F7	')				nd hydrology must be present,
Restrictive	Sleyed Matrix			Rec	dox Depres	sions (F8)				unless	s disturbed or problematic.
	Layer (if pre	esent):									
Type:	- I X									0 ''	
Depth (in Remarks:	cnes):								Hyari	c Soli	Present? Yes <u>V</u> No
HYDROLO											
Wetland Hy				ا مامماد	all that one	di A				C	dans Indicators (2 as mass vaccined)
Primary India	-	num or or	ie required	a; cneck	7		(5.5) (dary Indicators (2 or more required)
_	Water (A1)	۵)				ained Leaves		xcept			ater-Stained Leaves (B9) (MLRA 1, 2,
	ater Table (A	.2)			1	. 1, 2, 4A, ar	id 4B)				4A, and 4B)
<u>✓</u> Saturation	` ,				Salt Crus		(5.4.5)			_	rainage Patterns (B10)
	larks (B1)	(DO)		<u> </u>	7	nvertebrates				$\overline{}$	y-Season Water Table (C2)
	nt Deposits (B2)		<u> </u>	· · · · ·	Sulfide Odd			(00)		aturation Visible on Aerial Imagery (C9)
	posits (B3)	24)		-	_	Rhizosphere			Roots (C3)		eomorphic Position (D2)
_	at or Crust (E	5 4)		<u> </u>	_	of Reduced on Reduction		-	(C6)		nallow Aquitard (D3)
	oosits (B5) Soil Cracks	/D6)		-	_						AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A)
_		` '	ongon, (P	, <u>-</u>	_	r Stressed F	-	I) (LKF	X A)	_	` ' ' '
	on Visible or y Vegetated				j Other (⊏x	plain in Rem	iaiks)				ost-Heave Hummocks (D7)
Field Obser	=	Concave	Surface (50)							
		V-	. \square	N	Danalla (in	l \ ·					
Surface Wat						nches):					
Water Table						nches):		. 1			
Saturation P (includes car			s <u>V</u>	No	」 Depth (ir	nches):		_ w	etland Hyd	rology	Present? Yes <u>V</u> No
Describe Re			gauge, mo	nitoring	well, aerial	photos, pre	vious ins	pection	s), if availab	ole:	
Remarks:											

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Easton			Citv/Countv: Park			Sam	pling Date:	8/25	/2010
Applicant/Owner: MDT				Stat	te: MT	 Sam	pling Point:	E-4	
Investigator(s): B. Sandefur			Section, Township, Rar	_	32	T 4N	R 9E		
Landform (hillslope, terrace, etc.): Fla			Local relief (concave, o		ne) rolling	q	Sir	ne (%)	C
	L:						6667 _{Datu}		
Soil Map Unit Name:									
Are climatic / hydrologic conditions on				_					
Are Vegetation, Soil, c		_					nt? Yes <u>✓</u>	i Ni	
Are Vegetation, Soil, Coll, Coll		-						<u></u>	, <u> </u>
				eded, expl	-		•		
SUMMARY OF FINDINGS –		wing	sampling point lo	ocations	, transe	ects, imp	ortant fe	ature	s, etc.
Hydrophytic Vegetation Present?	Yes No		Is the Sampled	Δrea					
Hydric Soil Present? Wetland Hydrology Present?	Yes No No	 	within a Wetlan		Yes_	✓	No 🔲	_	
Remarks:	163 100								
VEGETATION - Use scientif	fic names of plants.								
Tree Stratum (Plot size: 0	Ak	bsolute Cover	Dominant Indicator Species? Status		nce Test				
1. 0		0			of Domina OBL, FA			3	(A)
2. 0		0	0						
- 0		Λ	0		mber of D Across Al			3	(B)
4. 0		0	0	,			_		,
	n . –	0	_ = Total Cover		of Domina OBL, FA			100	(A/B)
Sapling/Shrub Stratum (Plot size: 0)	0	□ 0	Prevale	nce Index	workshe	et:		
$\begin{bmatrix} 1.0 \\ 2.0 \end{bmatrix}$		0	$-\frac{\Box}{\Box}\frac{0}{0}$	Tota	al % Cove	r of:	Multir	oly by:	_
- 0			$-\frac{\Box}{\Box}\frac{0}{0}$	OBL spe	ecies _	60	_ x 1 =	60	_
0		^	$-\frac{\Box}{\Box}\frac{0}{0}$	FACW s	pecies _		_ x 2 =	0	_
5. 0		0		FAC spe	ecies _	0	_ x 3 =	0	_
		0	= Total Cover		pecies _	0	_ x 4 =	0	_
Herb Stratum (Plot size: 5ft)	20	- ODI	UPL spe			_ x 5 =	0 60	-
1 Typha latifolia 2 Eleocharis palustris		20 5	OBL OBL	Column	Totals:	60	= (A) ===		(B)
		20	OBL OBL				/A =	1	_
3. Beckmannia syzigachne Alisma gramineum		15	OBL	I	hytic Veg				
5. 7 dioma grammouni		0	$-{\Box}{0}$		-		phytic Vege	tation	
6. 0		0	$-\frac{\Box}{\Box}\frac{0}{0}$		Dominance Prevalence				
7. 0		0					≤3.0 :ations¹ (Pro	wido cur	anortino
8. 0		0		- 4-1	data in Rei	marks or c	n a separat	e sheet)))
9. 0		0	0	5 - \	Wetland N	on-Vascul	ar Plants ¹		
10.0		0	0	Prol	blematic H	łydrophytic	c Vegetation	า ¹ (Expla	tin)
11.0		0	0				wetland hyd		must
Woody Vine Stratum (Plot size:		60	_= Total Cover	be prese	ent, uniess	aisturbed	l or problem	auc.	
1. 0)	0	□ 0						
2.0		0	$-\frac{\Box}{\Box} \frac{0}{0}$	Hydropi Vegetat					
۷	40	0	= Total Cover	Present		Yes	✓ No_		
% Bare Ground in Herb Stratum	40 —								
Remarks:									
0									
US Army Corps of Engineers				Wester	n Mountai	ns, Valley	s, and Coas	t – Versi	ion 2.0

SOIL									Sampling Point: E-4
Profile Des	cription: (De	escribe to the de	pth need	ed to docu	ment the in	dicator	or confirn	n the absence o	
Depth		Matrix			ox Features				
(inches)	Color (m		Colo	r (moist)	%	Type ¹	_Loc ²	Texture	Remarks
0-4	10YR 2	2/2 95	10YR	5/2	5	С		Silt Loam	
4-11	10YR 3	3/2 95	10YR	4/3	5	С	M		
		D=Depletion, RM					d Sand G		ation: PL=Pore Lining, M=Matrix.
_		(Applicable to al				a.)			s for Problematic Hydric Soils ³ :
Histoso			_	ndy Redox					Muck (A10)
	pipedon (A2)		_	pped Matrix		/	MIDAA		Parent Material (TF2)
$\overline{}$	listic (A3) en Sulfide (A4	1)			Mineral (F1) I Matrix (F2)	(except	. WILKA 1)		Shallow Dark Surface (TF12) r (Explain in Remarks)
	•	· Surface (A11)	_	oleted Matr	, ,				(Explain in Itelliains)
	ark Surface (_ :	dox Dark Si				³ Indicator	s of hydrophytic vegetation and
	Mucky Minera				Surface (F7	·)			d hydrology must be present,
Sandy (Gleyed Matrix	(S4)		dox Depres					disturbed or problematic.
Restrictive	Layer (if pre	sent):							
Туре:									
Depth (in	iches):							Hydric Soil F	Present? Yes 🔽 No 🔲
Remarks:								•	
HYDROLC									
-	drology Indi							_	
	-	num of one require	d; check	_					dary Indicators (2 or more required)
_	Water (A1)				ained Leaves		xcept	Wa	ater-Stained Leaves (B9) (MLRA 1, 2,
	ater Table (A	2)		7	. 1, 2, 4A, ar	id 4B)			4A, and 4B)
<u>✓</u> Saturati	, ,			Salt Crus					ainage Pattems (B10)
	/larks (B1)		<u>_</u>	_	nvertebrates				y-Season Water Table (C2)
	nt Deposits (I	32)	<u> </u>	_ ′ ~	Sulfide Odd				turation Visible on Aerial Imagery (C9)
	posits (B3)			_	Rhizosphere				eomorphic Position (D2)
	at or Crust (B	4)		_	of Reduced	,	•		allow Aquitard (D3)
_	posits (B5)	(DO)		_	on Reduction				C-Neutral Test (D5)
	Soil Cracks		, ₇ ,		r Stressed F	-	1) (LRR A	_	nised Ant Mounds (D6) (LRR A)
		Aerial Imagery (E		J Other (Ex	plain in Rem	narks)		Fro	ost-Heave Hummocks (D7)
		Concave Surface	(88)						
Field Obser		v 🗆							
	ter Present?	Yes	_	_	nches):	4.0	-		
Water Table	Present?	Yes	No		nches):				
Saturation F		Yes	No	□ Depth (ir	nches):	2	_ Wetl	and Hydrology	Present? Yes No
	pillary fringe) corded Data	(stream gauge, m	onitorina	well, aerial	photos, prev	vious ins	pections).	if available:	
		. 55,	J		. ,,	,	, ,,		
Remarks:									

MDT Montana Wetland Assessment Form (revised March 2008)

8/25/20 Wetland Location(s): T Approx Stationing or Milepo	010 4. Evaluators	1	2. MD1	project#	ST	(X-34(14)		Cont	rol#	
Approx Stationing or Milepo		B. San	defur	5.	Wetl	and/Site# (s)	Creation			
·· <u> </u>	4N R 9	E	Sec1	32	Т	R		Sec2		
Interched	sts									
latershed Upper Shield	s River, Upper Yell Co	ounty	Park Co	ο.						
. Evaluating Agency	Confluence for MDT					8. Wetland s	ize acres			8.98
Purpose of Evaluation						How assesse		Measure	d e.g. by	
☐ Wetlands potentially affo	ected by MDT project					9. Assesssm	nent area			8.98
☐ Mitigation Wetlands: pre	e-construction					(AA) size (ac	•			
✓ Mitigation Wetlands: po						How assesse	ed:	Measure	d e.g. by (GPS
Other										
10. Classification of Wetlan	•	in AA								
HGM Class (Brinson) epressional	Class (Cowardin)		Excavat	r (Cowardi	n)	Water Re Seasonal/Inte			% of AA	90
•	Emergent Wetland					l				80
epressional	Emergent Wetland		Excavat	ed		Permanent/P	'erennial			20
General Condition of AA i. Disturbance: (use matrix b aquatic nuisance vegetations	pelow to determine [circle] a	ppropria	ite respon						d	
Conditions with	hin AA	natural hayed, conver roads o	ed in predo state; is no logged, or ted; does no	minantly ot grazed, otherwise	Land	conditions adjacent I not cultivated, but i erately grazed or ha	may be yed or	Land cult	ivated or hea	avily grazed ubstantial fill
CONTROLLS WIL				ot contain and noxious er is ?15%.	few r	ectively logged; or ha ect to minor clearing coads or buildings; n d or ANVS cover is ?	; contains oxious	hydrologi building	nt, grading, d	earing, or ; high road o xious weed
AA occurs and is managed in predomin grazed, hayed, logged, or otherwise coroads or occupied buildings; and noxion 715%.	nverted; does not contain			and noxious ver is ?15%.	few r	ect to minor clearing oads or buildings; n	; contains oxious 230%.	hydrologi building o or ANVS	nt, grading, d cal alteration density; or no	earing, or ; high road o xious weed %.
AA occurs and is managed in predomin grazed, hayed, logged, or otherwise co roads or occupied buildings; and noxiou	nverted; does not contain us weed or ANVS cover is ely grazed or hayed or to relatively minor clearing, fill	lov	or ANVS cov	and noxious ver is ?15%.	few r	ect to minor clearing oads or buildings; n d or ANVS cover is ?	; contains oxious 230%.	hydrologi building or ANVS	nt, grading, d cal alteration density; or no cover is >30°	earing, or ; high road o xious weed %.
AA occurs and is managed in predomin grazed, hayed, logged, or otherwise coroads or occupied buildings; and noxiot?15%. AA not cultivated, but may be moderate selectively logged; or has been subject placement, or hydrological alteration; cnoxious weed or ANVS cover is ?30%. AA cultivated or heavily grazed or logge substantial fill placement, grading, cleahigh road or building density; or noxious.	nverted; does not contain us weed or ANVS cover is ely grazed or hayed or to relatively minor clearing, fill ontains few roads or buildings; ed; subject to relatively ring, or hydrological alteration;	lov	v disturt	pance	few r weed	ect to minor clearing oads or buildings; n d or ANVS cover is?	contains oxious coxious coxiou	hydrologi building of or ANVS	nt, grading, d cal alteration density: or no cover is >30'	earing, or ; high road o xious weed %. urbance
AA occurs and is managed in predomin grazed, hayed, logged, or otherwise co roads or occupied buildings; and noxion 715%. AA not cultivated, but may be moderate selectively logged; or has been subject placement, or hydrological alteration; c	nverted; does not contain us weed or ANVS cover is ely grazed or hayed or to relatively minor clearing, fill ontains few roads or buildings; ed; subject to relatively ring, or hydrological alteration; us weed or ANVS cover is	hig , etc)	w disturb modera h disturb	pance	mo	ect to minor clearing oads or buildings; n d or ANVS cover is? low disturbar oderate distur high disturba	cy contains oxious 230%.	hydrologi building of or ANVS mode hig	nt, grading, d cal alteration density: or no cover is >30° rate disturb	earing, or ; high road o xious weed
AA occurs and is managed in predomin grazed, hayed, logged, or otherwise coroads or occupied buildings; and noxion 215%. AA not cultivated, but may be moderate selectively logged; or has been subject placement, or hydrological alteration; on noxious weed or ANVS cover is '30%. AA cultivated or heavily grazed or logge substantial fill placement, grading, cleahigh road or building density; or noxious 30%. Comments: (types of disturb this is the first baseline monito	nverted; does not contain us weed or ANVS cover is ely grazed or hayed or to relatively minor clearing, fill ontains few roads or buildings; ed; subject to relatively ring, or hydrological alteration; us weed or ANVS cover is enance, intensity, season oring as the site construct	hig , etc)	w disturb modera h disturb	pance	mo	ect to minor clearing oads or buildings; n d or ANVS cover is? low disturbar oderate distur high disturba	cy contains oxious 230%.	hydrologi building of or ANVS mode hig	nt, grading, d cal alteration density: or no cover is >30° rate disturb	earing, or ; high road o xious weed
AA occurs and is managed in predomin grazed, hayed, logged, or otherwise co roads or occupied buildings; and noxion 715%. AA not cultivated, but may be moderate selectively logged; or has been subject placement, or hydrological alteration; c noxious weed or ANVS cover is 730%. AA cultivated or heavily grazed or logge substantial fill placement, grading, clea high road or building density; or noxious 30%. Comments: (types of disturb his is the first baseline monito complex.	nverted; does not contain us weed or ANVS cover is ely grazed or hayed or to relatively minor clearing, fill ontains few roads or buildings; ed; subject to relatively ring, or hydrological alteration; us weed or ANVS cover is enance, intensity, season oring as the site construct c nuisance, other exotic	hig hig , etc) tion was	w disturb modera h disturb s comple	pance te bance ted in May	few r week	ect to minor clearing oads or buildings; n d or ANVS cover is? low disturbar oderate distur high disturba	cy contains oxious 230%.	hydrologi building of or ANVS mode hig	nt, grading, d cal alteration density: or no cover is >30° rate disturb	earing, or ; high road o ; high road o ; xious weed

13. Structural Diversity: (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 Initial Is current management preventing (passive) Modified existence of additional vegetated classes? Existing # of "Cowardin" Vegetated Classes in AA Rating R ating >=3 (or 2 if 1 is forested) classes NA NΑ NA Н 2 (or 1 if forested) classes NA NΑ NA Μ 1 class, but not a monoculture М <NO YES> L 1 class, monoculture (1 species comprises>=90% of total cover) NA NΑ NA L Comments: SECTION PERTAINING to FUNCTIONS_VALUES ASSESSMENT 14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals: i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions): Primary or critical habitat (list species) D S D S Secondary habitat (list Species) Incidental habitat (list species) D S ✓ S No usable habitat ii. Rating (use the condusions from i above and the matrix below to arrive at [check] the functional points and rating) Highest Habitat Level doc/primary sus/primary doc/secondary sus/secondary doc/incidental sus/incidental None Functional Points and .9H .8H .7M .3L 1H .1L 0L Rating **USF&WS** Sources for documented use 14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above) i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions): Primary or critical habitat (list species) D S ● D ○ S Secondary habitat (list Species) Bald Eagle (S3) D
 S Golden Eagle Incidental habitat (list species) No usable habitat ii. Rating (use the conclusions from above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: Functional Points and Rating	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: Functional Points and Rating	.9H	.7M	.6M	.5M	.2L	.1L	OL

Sources for documented use

MT NHP, bald eagle nest very close to site

bstantial (based) observations																			Mode	erate)	
observations of	d on an	y of the	following	g [che	ck]):						Minii	nal (b	ased or	any of	the follo	owing	check])	:	ı			
	of abun	dant wil	dlife #s	or high	n specie	es diver	sity (dur	ing an	y period	i)	fe	w or n	o wildlif	e obser	vations	during	peak us	se perio	ods			
abundant wild	llife sigr	such a	s scat, t	racks,	, nest st	ructure	s, game	trails,	etc.		lit	tle to r	o wildlif	e sign								
presence of e	xtremel	y limitin	g habita	t featu	ıres not	availat	ole in the	surro	unding	area	sp	arse a	adjacent	upland	food so	ources						
interviews with	h local l	oiologist	s with k	nowle	dge of t	he AA					in	terviev	vs with I	ocal bio	ologists	with kr	nowledg	e of the	AA			
derate (based o	on any o	of the fol	llowing [check	:]):																	
observations of	of scatte	ered wile	dlife gro	ups or	r individ	uals or	relativel	y few s	species	during	peak pe	riods										
common occu	ırrence	of wildli	fe sign s	such a	s scat, t	racks,	nest stru	uctures	s, game	trails, e	etc.											
adequate adja	acent up	oland fo	od sourc	ces																		
interviews with	h local l	oiologist	s with k	nowle	dge of t	he AA																
Wildlife hab om #13. For o her in terms o ermanent/pere rms])	class of of their	over to	be cont	nside positi	ered ev ion of tl	enly d he AA	istribut (see #	ed, th	ie mos Abbrev	t and l	east pi s for su	evale ırface	nt veg water	etate durati	d class ons are	es mu e as fo	ist be v	within 2 P/P =	20% o	f each		
ructural versity (see				Hig	gh							Mode	erate					Lo	w			
13) lass cover																						
istribution (all egetated		Eve	en			Une	ven			Eve	en			Une	ven			Eve	en			
asses)																						
uration of urface water in ≥ 0% of AA	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	А		
AA (see #12i)	Е	Е	Е	Н	Е	Е	Н	Н	Е	Н	Н	М	Е	Н	М	М	Е	Н	М	м		
oderate	·		i								1			T.,								
sturbance at AA ee #12i)	н	Н	Н	Н	Н	Н	Н	M	Н	Н	М	М	H	М	М		Н	М	L	L		
igh disturbance AA (see #12i)	М	М	М	L	М	М	٦	L	М	М	L	٦	М	L	L	Г	Г	٦	L	Γ		
ii. Rating (u Evidence of v					omia		above a	and t	he ma		Vildlife				rating			ooints	and r	rating) Low	
Substantial			1														1					
/loderate					1E	- 1		⊢		.91					_	8H					.7M	-
			\bot		.9⊦			_		.71	И					5M	_				.3L	
Minimal					.6N	1				.41	1					2L					.1L	

Duration of surface water																		
in AA		Pei	manent /	Perennial				Se	asonal / l	Intermitten	t			Tem	porary/	Epheme	eral	
Aquatic hiding / resting / escape cover	Opt	imal	Adeq	uate	Po	oor	Opti	mal	Ade	quate	Po	or	Opti	mal	Aded	quate	Po	oor
Thermal cover optimal/ suboptimal	0	S	0	S	0	S	0	S	0	S	0	S	0	S	0	S	0	S
FWP Tier I fish species	1E	.9Н	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially for	und in AA:									
ii. Modified Rating (NOTE: Modified score can a) Is fish use of the AA significantly reduced by a current final MDEQ list of waterbodies in need of fishery or aquatic life support, or do aquatic nuisal yes, reduce score in i above by 0.1: Modified F	nnot exceed culvert, dik TMDL deve	e, or other melopment with	an-made s In listed "Pr	obable Imp	aired Úses'	" including	cold or w		ne If	
b) Does the AA contain a documented spawning a comments) for native fish or introduced game fish	_	er critical hab ' • N			he adjusted					
iii. Final Score and Rating:	Commen	ts:		Modifica	rtuting					
14E. Flood Attenuation: (Applies only to wetlar			via in-chan	nel or over	bank flow. I	If wetland	s in AA are	e not floode	ed from in-	
	•	ed to 14F.)								
i. Rating (working from top to bottom, use the m Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly	v to arrive at entrenched - stream types	· C, D, E	Moderat	l points and ely entrench stream type		Entrench	ned-A, F, G	stream	
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%	
AA contains no outlet or restricted outlet	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L	
AA contains unrestricted outlet	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L	
Slightly Entrenched ER = >2.2 C stream type	h mo	Moderately I ER = 1.4 B strear	11 – 2.2		stream type	ER	ntrenched = 1.0 - 1.4		stream type	
o sheam type	-	D Stream			saccam type	Ę			sircain type	
2 x Bankfull Dep	oth 3	Bankfull Do	epth		Secretary Land	lood-pror full Widt				
Floodrpone width	/ Banki				=	Entrend ratio				
 ii. Are ≥10 acres of wetland in the AA subject to f within 0.5 mile downstream of the AA (check)? Comments: 	Y (ND are man-n	nade featu	res which i	may be sign	ificantly d	amaged b	y floods loc	ated	
Comments.										
14F. Short and Long Term Surface Water upland surface flow, or groundwater flow. In 14G.)	er Storag f no wetla	e: (Applies ands in the A	to wetlan AA are su	ds that flo	ood or pondooding or p	d from ov oonding,	erbank o		el flow, presented and proc	
i. Rating (Working from top to bottom, uswater durations are as follows: P/P = perma further definitions of these terms].)										
Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding		>5 acre feet			1.1 to 5	acre feet			≤1 acre foc	ot
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/F	>	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years	1H	.9Н	.8Н	.8	н .	6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8Н	.7M	.7	м .	5M	.4M	.3L	.2L	.1L

Comments:	

through influx of surface or ground to 14H.) i. Rating (working from top to bot		he matrix	below to arrive	e at [check] the	e functional poir	nts and rating	[H = high, M	1 = moderate, or L
= low]) Sediment, nutrient, and toxicant input levels within AA	to de compour not sub	eliver levels nds at level estantially in ces of nutrie	ounding land use of sediments, no s such that othe npaired. Minor so ents or toxic ants, hication present	utrients, or er functions are edimentation, , or signs of	developme nutrients, or to with potential compounds su	ent for "probable oxicants or AA r to deliver high lo ch that other fur ntation, sources	causes" relate eceives or sur evels of sedim actions are sub	rounding land us e nents, nutrients, or ostantially impaired. toxicants, or signs
% cover of wetland vegetation in AA Evidence of flooding / ponding in AA	≥ 7 Yes	70% No		70% No	≥ · Yes	70% No	Yes	< 70% No
AA contains no or restricted outlet	1H	.8H	Yes .7M	.5M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L
Comments:								
14H Sediment/Shoreline Stabilization drainage, or on the shoreline of a stand proceed to 14l.) i. Rating (working from top to bottom,	ing water bo	ody which is	s subject to wav o arrive at [chec	ve action. If 14F	does not apply,	click NA	or man-made here and	
% Cover of <u>wetland</u> streambank or shoreline by species with stability ratings of ≥6 (see Appendix F).	Permane	ent / Perennia		Seasonal / Intermit	t to rooted vegetation	Temporary / Ephe	emeral	
≥ 65%		1H		.9Н		.7M		
35-64%								
33-04 /6		.7M		.6M		.5M		
< 35%		.3L		.2L		.5M .1L		1
 < 35% Comments: Shoreline stabilization 14I. Production Export/Food Chain i. Level of Biological Activity (synthesis) 	n Support:	.3L sthe perin	h habitat ratings	.2L standing water				
 < 35% Comments: Shoreline stabilization 14I. Production Export/Food Chain i. Level of Biological Activity (synthesis) 	n Support:	.3L sthe perin		.2L standing water				
 < 35% Comments: Shoreline stabilization 14I. Production Export/Food Chain i. Level of Biological Activity (synthesis) General Fish Habitat 	n Support:	.3L sthe perindlife and fis	h habitat ratings	.2L standing water				
 < 35% Comments: Shoreline stabilization 14I. Production Export/Food Chain i. Level of Biological Activity (synth General Fish Habitat Rating (14D.iii.) 	n Support:	s the perin	h habitat ratings	.2L standing water s [check])				
Comments: Shoreline stabilization 14I. Production Export/Food Chai i. Level of Biological Activity (synt) General Fish Habitat Rating (14D.iii.) E/H H	n Support:	s the perin	h habitat ratings	standing water s [check]) iii.) L				
Comments: Shoreline stabilization 14I. Production Export/Food Chai i. Level of Biological Activity (synt) General Fish Habitat Rating (14D.iii.) E/H H M H	n Support:	s the perin	h habitat ratings	standing water s [check]) iii.) L M				
Comments: Shoreline stabilization 14I. Production Export/Food Chai i. Level of Biological Activity (synt) General Fish Habitat Grating (14D.iii.) E/H H M L M	n Support: hesis of wild eneral Wild a, use the ma elevel of bi ertain to dur	s the perimediffe and fis M M M M M M M M M M M M M M M M M M M	h habitat ratings t Rating (14C.i	standing water s [check]) iii.) L M L L eck] the function n above (141.i.);	Factor C = wheth	.1L ig. Factor A = aer or not the AA	contains a si	urface or
Comments: Shoreline stabilization 14I. Production Export/Food Chai i. Level of Biological Activity (synt) General Fish Habitat Rating (14D.iii.) E/H H M L N/A ii. Rating (Working from top to bottom wetland component in the AA; Factor B subsurface outlet; the final three rows p [see instructions for further definitions of A Vegetated component >5 a B High Moderate	n Support: hesis of wild eneral Wild i, use the ma elevel of bi ertain to dur f these term acres Low	s the perind different dif	to arrive at [che tivity rating from frace water in the Vegetated oc High	standing water s [check]) iii.) L M L cck] the function n above (14I.i.); ne AA, where P/ component 1-5 acres	Factor C = whether, S/I, and T/E ar	ng. Factor A = a er or not the AA e as previously Vegetated High	contains a sudefined, and component <1 acr	urface or A = "absent" re Low
Comments: Shoreline stabilization 14I. Production Export/Food Chai i. Level of Biological Activity (synt) General Fish Habitat Grating (14D.iii.) E/H M L M L N/A ii. Rating (Working from top to bottom wetland component in the AA; Factor B subsurface outlet; the final three rows p [see instructions for further definitions of A Vegetated component >5 & B High Moderate C Yes No Yes No	n Support: hesis of wild eneral Wild n, use the m = level of bi ertain to dur f these term acres Low Yes N	s the perind different fisher. M M M M M M M M M M M M M	to arrive at [che tivity rating from face water in the No Yes	standing water s [check]) iii.) L M L L ceck] the function n above (14I.i.); ne AA, where P/I component 1-5 acres Moderate is No Yes	Factor C = whether, S/I, and T/E ar	.1L .1L .1L .1L .1L .1L	contains a sidefined, and component <1 act	re Low Yes No
Comments: Shoreline stabilization 14I. Production Export/Food Chai i. Level of Biological Activity (synt) General Fish Habitat Grating (14D.iii.) E/H H M L M L M L M H ii. Rating (Working from top to bottom wetland component in the AA; Factor B subsurface outlet; the final three rows provided in the stability of the subsurface outlet; the final three rows provided in the subsurface outlet; the final three rows provided in the subsurface outlet; the final three rows provided in the subsurface outlet; the final three rows provided in the subsurface outlet; the final three rows provided in the subsurface outlet; the final three rows provided in the subsurface outlet; the final three rows provided in the subsurface outlet; the final three rows provided in the subsurface outlet; the final three rows provided in the subsurface outlet; the subsurface outl	n Support: hesis of wild eneral Wild n, use the m = level of bi ertain to dur f these term acres Low Yes A 4	s the perind different fisting for the perind different fisting fisting for the perind different fisting fisting for the perind different fisting for the perind different fisting	to arrive at [che tivity rating from face water in the light of the linterval of the light of the light of the light of the light of th	standing water s [check]) iii.) L M L cck] the function n above (14I.i.); ne AA, where P/ component 1-5 acres doderate is No Yes	Factor C = whether, S/I, and T/E ar	ng. Factor A = aer or not the AA e as previously Vegetated High No Ye.	contains a sidefined, and component <1 across No	re Low Yes No .3L .2L
Comments: Shoreline stabilization 14I. Production Export/Food Chai i. Level of Biological Activity (synt) General Fish Habitat Grating (14D.iii.) E/H M L M L N/A ii. Rating (Working from top to bottom wetland component in the AA; Factor B subsurface outlet; the final three rows p [see instructions for further definitions of A Vegetated component >5 & B High Moderate C Yes No Yes No	n Support: hesis of wild eneral Wild a, use the m. elevel of bi ertain to dur f these term acres Low Yes .6M .4 .5M .3	s the perind different fisher. M M M M M M M M M M M M M	to arrive at [che tivity rating from face water in the No Yes	standing water s [check]) iii.) L M M L L ceck] the function n above (14I.i.); ne AA, where P/I component 1-5 acres //oderate iii. No Yes 1	Factor C = whether, S/I, and T/E ar Low No Yes M .3L .8H	ng. Factor A = a er or not the AA e as previously Vegetated High No Ye 1 .6M .6I	contains a sidefined, and component <1 ac Moderate s No 44M 44M 44M 3L 3L	re Low Yes No

i. Discharge Ind The AA is a slope we Springs or seeps are Vegetation growing of Wetland occurs at the Seeps are present at AA permanently flood Wetland contains an Shallow water table a Other:	licators etland known or obset during dormant e toe of a natuu t the wetland ed ded during drou outlet, but no i and the site is s	erved season/dro ral slope dge ught periods nlet saturated to	ught	Pern Wetl Stream Other	ii. neable substr and contains am is a knowr	Rec harge ate present v inlet but no o n 'losing' stre	Indicators without underloutlet bam; discharg	lying impeding layer e volume decreases
iii. Rating (use the inforn	nauon irom I a	nu ii above		ration at AA	Wetlands FR	OM GROUND	WATER DISC	HARGE OR WITH WATER
Criteria			P/P	<u>IHAT IS</u>	RECHARGING	IHE GROU		
Groundwater Discharge or R	techarge		1H		.7M		T .4M	None .1L
Insufficient Data/Information	1					NA		
omments:								
14K. Uniqueness: i. Rating (working from to	op to bottom, u	ıse the mat	rix below to arr	ive at [chec	k] the functio	nal points ar	nd rating)	
Replacement potential	AA contains or mature wetland or	fen, bog, v (>80 yr-old	varm springs I) forested ciation listed	AA does cited ra diversity	s not contain re types and (#13) is high ociation listed the MTNHF	previously structural or contains d as "S2" by	AA doe:	s not contain previously re types or associations uctural diversity (#13) is low-moderate
Estimated relative abundance (#11)	rare	commo	abundant	rare	common	abundant	rare	common abundant
Low disturbance at AA	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M .3L
(#12i) Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L .2L
High disturbance at AA (#12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L	.2L .1L
14L. Recreation/Education i. Is the AA a known or poster and proceed to the categorial of the categori	otential rec./e to the overall s es that apply	ed. site: (check summary are to the AA:	eck) Y d rating page) Education	N Onal/scientific	(if 'Yes' con study; ✓ C	tinue with th	e evaluation;	if 'No' then click NA
Known or Potential Recreation	or Education An	rea					ŀ	Known Potential
Public ownership or public e			c access (no pe	rmission req	uired)			.2H .15H
Private ownership with gene	ral public acces	ss (no permi	ssion required)					.15H .1M
Private or public ownership	without general	public acce	ss, or requiring	permission f	or public acce	ess		.1M .05L
comments:								
General Site Notes								

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Creation

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1	0	
B. MT Natural Heritage Program Species Habitat	М	.6	1	5.388	
C. General Wildlife Habitat	М	.5	1	4.49	
D. General Fish Habitat	NA	0	0	0	
E. Flood Attenuation	М	.6	1	5.388	✓
F. Short and Long Term Surface Water Storage	Н	.9	1	8.082	V
G. Sediment/Nutrient/Toxicant Removal	М	.7	1	6.286	✓
H. Sediment/Shoreline Stabilization	L	.2	1	1.796	
Production Export/Food Chain Support	М	.5	1	4.49	
J. Groundwater Discharge/Recharge	Н	1	1	8.98	✓
K. Uniqueness	L	.2	1	1.796	
L. Recreation/Education Potential (bonus points)	L	.05	NA	0.449	
Totals:		5.25	10	47.145	
Percent of Possible Score	•		52.5 %		

Category I Wetland: (must satisfy one of the following criteria; otherwise go to Category II) Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or Score of 1 functional point for Uniqueness; or Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; or Percent of possible score > 80% (round to nearest whole #).
Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; otherwise go to Category IV) Score of 1 functional point for MT Natural Heritage Program Species Habitat; or Score of .9 or 1 functional point for General Wildlife Habitat; or Score of .9 or 1 functional point for General Fish Habitat; or "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or Score of .9 functional point for Uniqueness; or Percent of possible score > 65% (round to nearest whole #).
Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)
Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III) "Low" rating for Uniqueness; and Vegetated wetland component < 1 acre (do not include upland vegetated buffer); and Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: (check appropriate category based on the criteria outlined above)

1	II	III	IV

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Eastor	n	2. MDT	project#	ST	(X-34(14)		Con	itrol#	
3. Evaluation Date 8/25/2	010 4. Evaluators E	3. Sandefur	5.	Wetl	and/Site# (s)	Preserva	tion		
6. Wetland Location(s): T	4N R 9E	Sec1	32	Т	R		Sec2		
Approx Stationing or Milepo	ests						_		
Watershed Upper Shield	ds River, Upper Yell Co	unty Park C	0.						
7. Evaluating Agency	Confluence for MDT				8. Wetland s	size acres			1.1
Purpose of Evaluation					How assesse	ed:	Measur	ed e.g. by G	PS
☐ Wetlands potentially aff	ected by MDT project				9. Assesssn				1.1
☐ Mitigation Wetlands: pr	e-construction				(AA) size (ac	•	Measure	ed e.g. by Gl	28
✓ Mitigation Wetlands: po	est construction				110W 033C33	ou.	Wicasard	od c.g. by O	
Other									
10. Classification of Wetlan	nd and Aquatic Habitats i	n AA							
HGM Class (Brinson)	Class (Cowardin)	Modifie	er (Cowardi	n)	Water Re	gime		% of AA	
Riverine	Emergent Wetland				Seasonal/Int	ermittant			20
Riverine	Scrub-Shrub Wetland				Permanent/F	Perennial			10
Riverine	Forested Wetland				Permanent/F	Perennial			70
]				_
11. Estimated Relative Abun									
 General Condition of AA Disturbance: (use matrix taguatic nuisance vegetation 	pelow to determine [circle] ap	propriate respon	nse – see inst	ructio	ns for Montana-li	sted noxiou	s weed ar	nd	
					conditions adjacent	· ·	¬ı ′		
		Managed in predo natural state; is no	ot grazed,	mod	I not cultivated, but erately grazed or ha	ayed or	or logge	Itivated or heavi	ostantial fill
Conditions wit	thin AA	hayed, logged, or converted, does n	ot contain	subj	ctively logged; or ha ect to minor clearing	g; contains	hydrolog	ent, grading, dea gical alteration; l	nigh road or
		roads or buildings weed or ANVS co			oads or buildings; r d or ANVS cover is			density; or noxi Scover is >30%	
AA occurs and is managed in predomin	-								_
grazed, hayed, logged, or otherwise or roads or occupied buildings; and noxio ?15%.		low distur	bance		low disturba	nce	mod	erate distu	bance
AA not cultivated, but may be moderate selectively logged; or has been subject placement, or hydrological alteration; or noxious weed or ANVS cover is 30%.	t to relatively minor clearing, fill contains few roads or buildings;	modera	ate	mo	oderate distur	bance	hi	gh disturba	nce
AA cultivated α heavily grazed or logg substantial fill placement, grading, cleahigh road or building density; or noxion >30%.	aring, or hydrological alteration;	high distur	bance		high disturba	nce	hi	gh disturba	nce
Comments: (types of disturb AA undisturbed during constru		etc)							
i. Prominent noxious, aquat	ic nuisance, other exotic	species:							
Cirsium arvense	,	-							
ii. Provide brief descriptive									
AA includes pre-existing emerg constructed wetland complex,								ises include	recently

13. Structural Diversity: (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 Initial Is current management preventing (passive) Modified existence of additional vegetated classes? Existing # of "Cowardin" Vegetated Classes in AA Rating R ating >=3 (or 2 if 1 is forested) classes NA NΑ NA Н 2 (or 1 if forested) classes NA NΑ NA Μ 1 class, but not a monoculture М <NO YES> L 1 class, monoculture (1 species comprises>=90% of total cover) NA NΑ NΑ Comments: SECTION PERTAINING to FUNCTIONS_VALUES ASSESSMENT 14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals: i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions): Primary or critical habitat (list species) D S D S Secondary habitat (list Species) Incidental habitat (list species) D S ✓ S No usable habitat ii. Rating (use the condusions from i above and the matrix below to arrive at [check] the functional points and rating) doc/secondary Highest Habitat Level doc/primary sus/primary sus/secondary doc/incidental sus/incidental None Functional Points and .9H .8H .7M .3L 1H .1L 0L Rating **USF&WS** Sources for documented use 14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above) i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions): Primary or critical habitat (list species) D S \odot D \bigcirc S Secondary habitat (list Species) Bald Eagle Incidental habitat (list species) D S S No usable habitat ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating) Highest Habitat Level doc/primary sus/primary doc/secondary sus/secondary doc/incidental sus/incidental None S1 Species: Functional Points and .7M 1H .8H .6M .2L .1L 0L Rating S2 and S3 Species:

Functional Points and .9H .7M .5M .2L 0L .6M .1L Rating

Sources for documented use

MT NHP, bald eagle nest close to mitigation site

bstantial (based observations																			Mod	erate)	
1	d on an	y of the	followin	g [che	ck]):												[check])					
				_				-		1)					vations	during	peak u	se perio	ods			
abundant wild	_						-						o wildlif	•								
presence of e			-				ole in the	surro	unding	area	\equiv				food s							
interviews with	h local l	oiologist	s with k	nowle	dge of t	he AA					in	terviev	vs with I	ocal bio	ologists	with kı	nowledg	e of the	: AA			
oderate (based of observations of common occular adequate adjatinterviews with	of scatte urrence acent up	ered wild of wildli pland for	dlife gro fe sign s	ups or such a ces	r individ	racks,		•				riods										
. Wildlife hab rom #13. For of ther in terms of ermanent/pere erms]) tructural	class of of their	over to perce	be con	onside positi al/inte	ered even of the ermitte	enly d he AA	istribut (see #	ed, th	ie mos Abbrev	t and l	east pr s for su	evale irface = ab	nt veg water sent [s	etate durati	d class ons are	es mi	ust be ollows:	within 2 P/P = r defini	20% o	f each		
liversity (see 113) Class cover listribution (all		Eve	en	Hi	gn	Une	ven			Eve	en	Mode	erate	Une	ven			Lov				
vegetated classes)																						
Duration of surface water in ≥ 10% of AA	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	А	P/P	S/I	T/E	А		
Low disturbance at AA (see #12i)	E	Е	E	Н	Е	Е	Н	н	Е	Н	Н	М	Е	Н	М	М	Е	Н	М	М		
Moderate disturbance at AA (see #12i)	н	Н	Н	Н	Н	Н	Н	М	Н	Н	М	М	Н	М	М	L	Н	М	L	L		
High disturbance at AA (see #12i)	М	М	М	L	М	М	L	L	М	М	L	L	М	L	L	L	L	L	L	L		
iii. Rating (u Evidence of v Substantial					Except	ional	above a	and t	he ma	V High	Vildlife				rating Mod	g (ii) derat		points	and	rating	Low	1
Moderate					1E	_				.91					_	8H	_				.7M	H
wouciale			\perp		.9l	1				.71	И				•	5M					.3L	
Minimal						1				.41											.1L	

i. Habitat Quality and	Known	Suspec	tearist	Specie	:S III A/	A (use ii	iallix lu	ariive a	LICHECK	the fullct	ionai po	ints and	rating)					
Duration of surface water in AA		Pe	manent /	Perennial				Se	asonal /	Intermitten	t			Tem	porary/	Epheme	eral	
Aquatic hiding / resting / escape cover	Opt	imal	Adeq	uate	Po	oor	Opti	mal	Ade	quate	Po	or	Opti	mal	Adeo	quate	Po	oor
Thermal cover optimal/ suboptimal	0	S	0	S	0	S	0	S	0	S	0	S	0	S	0	S	0	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in An: ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1) a) Is fish use of the AA significantly reduced by a culvert, dife, or other man-made structure or activity or is the waterbody included on the current final MDEO list of waterbodies in need of TMDL development with listed *Probable impaired Uses* including cold or warm water fishary or a qualic instance plant or animal species (see Appendix E) occur in fish habitat? Y
If yes, add 0.1 to the adjusted score in I or iiia above: Modified Rating
14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from inchannel or overbank flow, click NA here and proceed to 14F.) i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating) Estimated or Calculated Entrenchment (Rosgen 1994, 1996) % of flooded wetland classified as forested 175% 25-75% 25% 75% 25-75% 25% 75% 25-75% 25% 1994, 1996) AA contains no outlet or restricted outlet 1H 9H 6M 8H 7M 5M 4M 3L 2L AA contains unrestricted outlet 9H 8H 5M 7M 6M 4M 3L 2L 1L Slightly Entrenched ER = 3.2 Entrenched ER = 1.0 - 1.4 Entrenched ER = 1.0 - 1.
i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating) Estimated or Calculated Entrenchment (Rosgen 1994, 1996) Slightly entrenched - C, D, E stream type Wo of flooded wetland classified as forested and/or scrub/shrub AA contains no outlet or restricted outlet AB ankfull Depth Slightly Entrenched
Estimated or Calculated Entrenchment (Rosgen 1994, 1996) Slightly entrenched - C, D, E stream types Stream types Slightly entrenched - C, D, E stream type Stream types Stream type Stream type AA contains no outlet or restricted outlet AA contains unrestricted outlet Bankfull Depth Bankfull Depth Flood-prone Width Bankfull Width Flood-prone Bankfull Depth Entrenched - B stream type Stream type Stream type A stream type Firenched Entrenched Entrenched Entrenched Entrenched ER = 1.0 - 1.4 Flood-prone Width Bankfull Width Flood-prone
1994, 1996) % of flooded wetland classified as forested and/or scrub/shrub AA contains no outlet or restricted outlet 1H 9H 6M 8H .7M .5M .4M .3L .2L AA contains unrestricted outlet 19H 8H .5M .7M .6M .4M .3L .2L .1L Slightly Entrenched ER = >2.2 Entrenched ER = 1.0 - 1.4 C stream type
AA contains no outlet or restricted outlet AA contains unrestricted outlet Bankfull Depth AB ankfull Depth Prood-prone Width Bankfull Width Prood-prone Width Bankfull Width Prood-prone Width Bankfull Width Prood-prone Width Bankfull Width
AA contains unrestricted outlet 9H 8H 5M 7M 6M 4M 3L 2L 1L Slightly Entrenched Entrenched ER = 2.2 Entrenched ER = 1.41 - 2.2 ER = 1.0 - 1.4 C stream type D stream type E stream type B stream type A stream type F stream type G stream type 2 x Bankfull Depth Flood-prone Width Bankfull Width
Slightly Entrenched ER = >2.2 C stream type D stream type B stream type A stream type Flood-prone Width Bankfull Depth Flood-prone Width Bankfull Depth Flood-prone Width Bankfull Depth Flood-prone Width
C stream type D stream type E stream type B stream type F stream type G stream type 2 x Bankfull Depth Bankfull Depth Flood-prone Width Bankfull Width Flood-prone Width Bankfull Depth
2 x Bankfull Depth Flood-prone Width Bankfull Depth Fortrenchment
2 x Bankfull Depth Bankfull Depth Flood-prone Width Bankfull Width
Bankfull Depth Bankfull Depth Fixenchment
width ratio
 ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (check)? Y
Comments: AA subject to flooding from adjacent Shields River.
14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, dick NA here and proceed to 14G.)
i. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)
Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic >5 acre feet 1.1 to 5 acre feet ≤1 acre foot
flooding or ponding
Duration of surface water at wetlands within the AA P/P S/I T/E P/P S/I T/E P/P S/I T/E
1H
P/P S/I T/E P/P S/I T/E P/P S/I T/E

Comments:	

14G. Sediment/Nutries through influx of surface to 14H.)															ortoxic and prod	
i. Rating (working from = low])	top to bo	ttom, use	the ma	trix be	elow to	arrive a	t [checl	k] the f	unctiona	al points	and rati	ng [H	= high,	M = m	oderate,	or L
Sediment, nutrient, and toxic levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are								Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.							
% cover of wetland vegetati Evidence of flooding / ponda		≥	70%			< 70°	%			≥ 709	%			< 70	1%	
AA contains no or restricte	d outlet	Yes	No	πİ	Yes		No		Yes	1	No	1	Yes	πİ	No	1
AA contains unrestricted o	utlet	1H	.81	-	.7M		.5M		.5N		.4N		.3L		.2L	
		.9H	.71	Л	.6M		.4M		.4N	1	.3L		.2L		.1L	
14H Sediment/Shoreline Strainage, or on the shoreling proceed to 14I.) i. Rating (working from to	e of a stand	ding water l	body wh	ich is	subject t	o wave a	action. If	f 14H do	oes not a	pply, clic		ral or n		le		
% Cover of <u>wetland</u> streambant shoreline by species with stabili	k or	, 400 1.10 1.							rooted ve							
of ≥6 (see Appendix F).	ty raungs	Perma	nent / Per	ennial		Sea	sonal / Int	termittent	t	Te	mporary / I	Epheme	ral			
≥ 65%			1H				.9⊦				.71	1				
35-64% < 35%	-		.7M				.6M	1			.51	_				
														-		
14I. Production Export	/Food Chai	in Support	t:													
i. Level of Biological A							heck])									
General Fish Habitat Rating (14D.iii.)	E/H	Seneral Wi	M		Rating (14C.III.) L										
E/H	Н		Н			N	Л									
M	Н		М				Л									
L	М		М			l	-									
N/A	Н		М			l	-									
ii. Rating (Working from the Asubsurface outlet; the final see instructions for further A Vegetated B High	AÀ; Factor B three rows p	B = level of pertain to d of these ter	biologica uration o ms].)	al activ	vity rating ace wate	g from al	Oove (14 AA, whe	I.i.); Fac re P/P, s	ctor C = v	whether	or not the as previou	AA cor sly def	ntains a ined, an	surface d A = "a	or	i T
C Yes No Ye		Yes	No	Yes	No	Yes	No .	Yes	No	Yes	No	Yes	No	Yes	No	I
P/P 1E .7H .8	.5M	.6M	.4M	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L	ī
S/I	7H .4	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.5M	.5M	.3L	.3L	.2L	
T/E/A .8H .5M .6	.3L	.4M	.2L	.7H	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L	
iii. Modified Rating (NOTI plant cover, ≤ 15% noxious v control). a) Is there an average ≥ 50 ft to the score in ii above and	veed or AN\	/S cover, a	and that i	is not	subjecte	d to peri	odic med e <i>AA circ</i>	chanica	l mowing			ss for w		1		

Comments:

i. Discharge Ind The AA is a slope we Springs or seeps are Vegetation growing d Wetland occurs at the Seeps are present at AA permanently flood	icators tland known or obseuring dormant to toe of a natu the wetland e	erved t season/dro ral slope dge		Perm Wetl	ii. neable substrand contains am is a known	Recharge ate present inlet but no	e Indicator without unde	rs erlying impeding ge volume dec	,	
Wetland contains an Shallow water table a Other:	outlet, but no i	inlet saturated to	the surface		'					
ii. Rating (use the inform	nation from i a	and ii above		ration at AA	Wetlands FRO	OM GROUNE	WATER DIS	CHARGE OR WI	TH WATER	
Criteria			P/P	THATIS	RECHARGING S/I	THE GROU	T		one	
Groundwater Discharge or Re	echarge		1H		.7M		.4M		1L	
nsufficient Data/Information			<u> </u>			NA				
omments:										
I4K. Uniqueness: . Rating (working from to	on to hottom u	ise the mat	rix helow to an	ive at Ichec	k] the function	nal noints a	nd rating)			
Replacement potential	AA contains or mature wetland or	s fen, bog, v e (>80 yr-old	varm springs d) forested ciation listed	AA does cited rai diversity (s not contain pre types and (#13) is high ociation listed the MTNHP	previously structural or contains I as "S2" by	AA do	es not contain previously are types or associations ructural diversity (#13) is		
Estimated relative abundance (#11)	rare	commo	abundant	rare	common	abundant	rare	low-moderat common	abundant	
_ow disturbance at AA	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L	
#12i) Moderate disturbance at	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.3L	
AA (#12i) ligh disturbance at AA #12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L	.2L	.1L	
omments: 4L. Recreation/Educatio				AA provides				n: if 'No' then c	lick NA	
ii. Check categorie Other ii. Rating (use the matrix	es that apply	to the AA:	Education		•	onsumptive	e rec.; 🔽 N	lon-consumptiv	/e rec.;	
Known or Potential Recreation								Known Po	tential	
Public ownership or public ea		<u> </u>	· ·	rmission req	uired)			.2H	.15H	
Private or public ownership v	vithout general	l public acce	ss, or requiring	permission f	or public acce	ess		.15H	.1M	
omments:							<u> </u>	.1M	.05L	
oninents.										
eneral Site Notes										

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Preservation

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1	0	
B. MT Natural Heritage Program Species Habitat	М	.6	1	0.66	
C. General Wildlife Habitat	Н	.9	1	0.99	
D. General Fish Habitat	NA	0	0	0	
E. Flood Attenuation	Е	1	1	1.1	
F. Short and Long Term Surface Water Storage	Н	.8	1	0.88	
G. Sediment/Nutrient/Toxicant Removal	Н	1	1	1.1	
H. Sediment/Shoreline Stabilization	NA	0	0	0	
Production Export/Food Chain Support	М	.7	1	0.77	
J. Groundwater Discharge/Recharge	Н	1	1	1.1	
K. Uniqueness	М	.6	1	0.66	
L. Recreation/Education Potential (bonus points)	L	.05	NA	0.055	
Totals:		6.65	9	7.315	
Percent of Possible Score			73.89 %		<u> </u>

Category I Wetland: (must satisfy one of the following criteria; otherwise go to Category II) Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or Score of 1 functional point for Uniqueness; or Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; or Percent of possible score > 80% (round to nearest whole #).
Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; otherwise go to Category IV) Score of 1 functional point for MT Natural Heritage Program Species Habitat; or Score of .9 or 1 functional point for General Wildlife Habitat; or Score of .9 or 1 functional point for General Fish Habitat; or "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or Score of .9 functional point for Uniqueness; or Percent of possible score > 65% (round to nearest whole #).
Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)
Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III) "Low" rating for Uniqueness; and Vegetated wetland component < 1 acre (do not include upland vegetated buffer); and Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: (check appropriate category based on the criteria outlined above)

ı	II	III	IV

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Eastor		2. MDT project#	ST{X-34(14) Control#							
3. Evaluation Date 8/25/2	010 4. Evaluators	B. San	defur 5.	Wet	land/Site# (s)	Restorati	on			
6. Wetland Location(s): T	4N R 9	E	Sec1 32	Т	R		Sec2			
Approx Stationing or Milepo	ests									
Watershed Upper Shield	ds River, Upper Yell Co	ounty	Park Co.							
7. Evaluating Agency	Confluence for MDT				8. Wetland s	size acres			1.45	
Purpose of Evaluation					How assesse	ed:	Measure	ed e.g. by GPS	3	
☐ Wetlands potentially aff	ected by MDT project				9. Assesssm				1.45	
☐ Mitigation Wetlands: pro	e-construction				(AA) size (ac	•	Measure	ed e.g. by GPS		
✓ Mitigation Wetlands: po	st construction									
Other										
10. Classification of Wetlan	nd and Aquatic Habitats	in AA								
HGM Class (Brinson)	Class (Cowardin)		Modifier (Cowardi	n)	Water Re	gime		% of AA		
Riverine	Emergent Wetland		Excavated		Seasonal/Int	ermittant	100			
]]					
]							
General Condition of AA i. Disturbance: (use matrix to aquatic nuisance vegetation	pelow to determine [circle] ap	ppropria								
Conditions wit	ihin AA	natura hayed conve	Predo ged in predominantly il state; is not grazed, I, logged, or otherwise rted; does not contain or buildings; and noxious or ANVS cover is ?15%.	Land mod sele subj	d not cultivated, but ilerately grazed or ha ctively logged; or ha ect to minor clearing roads or buildings; nd or ANVS cover is for the cover is for the cover is for the cover is for the cover is for the cover is for the cover is for the cover is for the cover is for the cover is for the cover is for the cover is for the cover is for the cover is for the cover is for the cover is for the cover is for the cover is for the cover is for the cover is for the cover is for the cover is for the cover is for the cover is for the cover in the cover is for the cover in the cover is for the cover in the co	may be ayed or as been g; contains noxious	Land cul or logge placeme hydrolog building	tivated or heavily of subject to substant, grading, dearing claim alteration; hig density: or noxious cover is >30%.	antial fill ng, or h road or	
AA occurs and is managed in predomir grazed, hayed, logged, or otherwise co roads or occupied buildings; and noxio 215%.	onverted; does not contain	low disturbance			low disturbance			moderate disturbance		
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is '30%.			moderate	moderate disturbance			high disturbance			
AA cultivated or heavily grazed or logg substantial fill placement, grading, cleahigh road or building density; or noxion >30%.	aring, or hydrological alteration;	hig	gh disturbance		high disturba	nce	hi	gh disturban	се	
Comments: (types of disturb High disturbance result of rece			channel and adjacer	nt we	tland complex.					
ii. Prominent noxious, aquati	ic nuisance, other exotic	c spec	cies:							
Carum carvi	· · · · · · · · · · · · · · · · · · ·									
iii. Provide brief descriptive										
AA includes 1.45 acres of wetla complex.	and within excavated floo	d char	nnel. Surrounding lar	nd us	e primarily enco	ompasses	recently	excavated we	tland	

13. Structural Diversity: (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 Modified Initial Is current management preventing (passive) existence of additional vegetated classes? Existing # of "Cowardin" Vegetated Classes in AA Rating R ating >=3 (or 2 if 1 is forested) classes NA NΑ NA Н 2 (or 1 if forested) classes NA NΑ NA Μ 1 class, but not a monoculture М <NO YES> L 1 class, monoculture (1 species comprises>=90% of total cover) NA NΑ NΑ L Comments: SECTION PERTAINING to FUNCTIONS_VALUES ASSESSMENT 14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals: i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions): Primary or critical habitat (list species) D S D S Secondary habitat (list Species) Incidental habitat (list species) D S ✓ S No usable habitat ii. Rating (use the condusions from i above and the matrix below to arrive at [check] the functional points and rating) doc/secondary Highest Habitat Level doc/primary sus/primary sus/secondary doc/incidental sus/incidental None Functional Points and .9H .8H .7M .3L 1H .1L 0L Rating **USF&WS** Sources for documented use 14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above) i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions): Primary or critical habitat (list species) D S Secondary habitat (list Species) Bald Eagle (S3) Incidental habitat (list species) S No usable habitat ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating) Highest Habitat Level doc/primary sus/primary doc/secondary sus/secondary doc/incidental sus/incidental None S1 Species: Functional Points and .7M 1H .8H .6M .2L .1L 0L Rating S2 and S3 Species: Functional Points and .9H .7M .5M .2L 0L

MT NHP, bald eagle nest very close to site Sources for documented use

.1L

.6M

Rating

bstantial (base	d on an	v of the	followin	a lcha	ck]).						Mini	mal (h	asad or	any of	the follo	owina	[check])		IVIOO	erate		
observations						e dive	eity (du	ring an	v nerica	4/		`		,		Ü	,		nde			
abundant wild					•		• •	•		few or no wildlife observations during peak use periods little to no wildlife sign												
presence of e										aroa					d food s	ourcos						
		•	•				JIE III III	e suito	unung	aica	_						nowledg	o of the				
interviews wit	II IUCAI I	biologisi	is willi k	liowie	uge or t	IIE AA						iterviev	vs willi	ocai bit	Jiogisis	WILLIA	nowieug	je or trie	z AA			
oderate (based	-		_																			
observations			Ü	•				•		·		eriods										
common occi			-		is scat,	tracks,	nest str	uctures	s, game	trails, e	etc.											
adequate adj																						
interviews wit	in local i	oiologist	ts with k	nowle	dge of t	he AA																
. Wildlife hab om #13. For ther in terms of ermanent/per erms])	class of their	over to	be con	nside positi	ered ev ion of t	enly d	listribu (see #	ted, th #10).	ne mos Abbrev	t and I	east p	revale urface	nt veg water	etateo durati	d class ons are	es mi	ust be ollows:	within P/P =	20% c	of each		
tructural iversity (see 13)				Hi	gh							Mode	erate					Lo	w			
Class cover distribution (all regetated classes)		Eve	en			Une	ven			Eve	en			Une	ven			Eve	en			
Ouration of ourface water in ≥ 0% of AA	P/P	S/I	T/E	Α	P/P	S/I	T/E	А	P/P	S/I	T/E	А	P/P	S/I	T/E	А	P/P	S/I	T/E	А		
ow disturbance t AA (see #12i)	Е	Е	Е	Н	Е	Е	Н	Н	Е	Н	Н	М	Е	Н	М	М	Е	Н	М	М		
sturbance at AA	Н	Н	Н	Н	Н	Н	Н	М	Н	Н	М	М	Н	М	М	L	Н	М	L	L		
igh disturbance t AA (see #12i)	М	М	М	L	М	М	L	L	М	М	L	L	М	L	L	L	L		L	L		
ii. Rating (Evidence of v							above_	and t	the ma						k] the rating		tional	points	and	rating))	
N. I 4 41. I			-	-	xcep	tion al		_		High	1 .				Mod	derat	<u>e</u>		4		Low	
Substantial					1E					.91	Н					8H					.7M	
/loderate					.9⊦	1				.71	М					5M					.3L	
Vinimal					.6N	1				.41	M					.2L					.1L	
ID. General build be used storable due	by fish to hal	n [i.e., oitat co	fish u onstra	se is ints,	preclu	uded	by per	ched	l culve	rt or c	other b	arrie	r, etc.]]. If th	ne ÅA	is no	t used	by fi	sh, fis	h use	is not	
Habitat Qu	ality a	nd Kno	own / S	uspe	cted F	ish S	oecies	in AA	(usen	natrix t	o arrive	e at [c	heck th	ne fund	ctional	points	and ra	nting)				
Duration of surfac				Р	ermanei	nt / Per	ennial					Seas	onal / In	termitte	nt				Ten	nporary	/ Epheme	eral
Duration of surfact in AA Aquatic hiding / re escape cover			Optim			nt / Pero		Po	or	Oį	otimal	Seas	onal / In			Poor		Optin			/ Epheme	eral

i. Habitat Quality and	Known	/ Suspec	tea Fish	Specie	es in A	A (usen	natrix to	arnve a	ticheck	the funct	ionai po	ints and	a rating)					
Duration of surface water in AA		Pe	manent /	Perennial	ļ.			Se	easonal /	Intermitten	t			Tem	porary/	Epheme	eral	
Aquatic hiding / resting / escape cover	Opi	timal	Adeq	uate	Po	oor	Opti	mal	Ade	quate	Po	or	Opti	mal	Aded	quate	Po	oor
Thermal cover optimal/ suboptimal	0	S	0	S	0	S	0	S	0	S	0	S	0	S	0	S	0	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially fo	und in A	A:										
ii. Modified Rating (NOTE: Modified score car a) Is fish use of the AA significantly reduced by a current final MDEQ list of waterbodies in need of fishery or aquatic life support, or do aquatic nuisa yes, reduce score in i above by 0.1: Modified	culvert, TMDL d nce plai	dike, evelo	or other n	nan-made : h listed "Pr	structure or obable Imp	paired (Jses	" including	cold or w	varm water	he If	
b) Does the AA contain a documented spawning comments) for native fish or introduced game fish	_		critical ha		e (i.e., sand add 0.1 to i Modife d	the adji	usted				,	
iii. Final Score and Rating:	Comm	ents	:									
14E. Flood Attenuation: (Applies only to wetla channel or overbank flow, click NA here				via in-chan	nel or over	bank fl	ow.	If wetland	s in AA ar	e not floode	ed from in-	
i. Rating (working from top to bottom, use the r												
Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Sligh	. ,	ntrenched ream type	-,,,	Modera	tely ent stream			Entrenc	hed-A, F, G types	stream	
% of flooded wetland classified as forested and/or scrub/shrub	75%		25-75%	<25%	75%	25-7		<25%	75%	25-75%	<25%	
AA contains no outlet or restricted outlet	11	1	.9H	.6M	.8H	.7	М	.5M	.4M	.3L	.2L	
AA contains unrestricted outlet	.91	1	.8H	.5M	.7M	.6	M	.4M	.3L	.2L	.1L	
Slightly Entrenched ER = >2.2		·		Entrenched					ntrenched = 1.0 - 1.4			
C stream type D stream type E stream	ype		B strea		A	stream t	уре		stream typ		stream type	
	:J							Ę				
2 x Bankfull De	oth	F	Bankfull D	epth		ACK!	9	Flood-pror				
Floodrpone width		nkful dth	II				=	Entreno ratio	hment			
ii. Are ≥10 acres of wetland in the AA subject to within 0.5 mile downstream of the AA (check)? Comments:	flooding Y	AND	are man-	made featu	ires which	may be	sign	ificantly d	amaged b	y floods loo	cated	
14F. Short and Long Term Surface Wat upland surface flow, or groundwater flow. 14G.)	er Stor f no we	age: etland	(Applies ds in the	to wetlar AA are su	nds that flo object to fl	ood or ooding	pono	d from ov conding,	verbank o dick [nel flow, pr e and proc	
 i. Rating (Working from top to bottom, us water durations are as follows: P/P = perm further definitions of these terms].) 												
Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding		>	5 acre feet			1.1	1 to 5	acre feet			≤1 acre foo	I
Duration of surface water at wetlands within the AA	P/P		S/I	T/E	P/I	P		S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years	1H		.9H	.8Н	.8	Н	\coprod	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H		.8H	.7M	.7	М		.5M	.4M	.3L	.2L	.1L

Comments:	

i. Rating (working from top to bot = low])	tom, use	the matrix b	elow to arr	rive at [check] the function	al points	and rating	[H = high, l	M = moderate	e, or L
Sediment, nutrient, and toxicant input levels within AA	to component su	deliver levels of unds at levels obstantially im rces of nutrier	of sediments such that of paired. Mino nts or toxicar	use with potent i, nutrients, or ther functions a r sedimentation its, or signs of	ial dev nutrier ire with po n, compou	elopment its, or toxi otential to nds such	for "probable cants or AA r deliver high le that other fur tion, sources	causes" rela eceives or si evels of sedi actions are su of nutrients of	s in need of TMD ated to sediment urrounding land ments, nutrients ubstantially impa or toxicants, or s	t, use s, or aired.
% cover of wetland vegetation in AA	<u>≥</u>	70%	nication pres	ent. < 70%		≥ 70		ation presen	nt. < 70%	
Evidence of flooding / ponding in AA AA contains no or restricted outlet	Yes	No	Yes	No	Ye	s	No	Yes	No	
	1H	.8H	.7M	.5M	.51	М	.4M	.3L	.2L	
AA contains unrestricted outlet	.9H	.7M	.6M	.4M	.41	М	.3L	.2L	.1L	
Comments: 14H Sediment/Shoreline Stabilization								or man-mad	e	
drainage, or on the shoreline of a stand proceed to 14l.) i. Rating (working from top to bottom,	Ü	•	,			11 27	ck L NA	here and		
% Cover of <u>wetland</u> streambank or shoreline by species with stability ratings	Permar	nent / Perennial	Duration of s	surface water adja		Ť	emporary / Ephe	ameral		
of ≥6 (see Appendix F). ≥ 65%	reilliai	1H		.9H	emiliterit	16	.7M	siliciai		
35-64%		.7M		.6M			.5M			
< 35%		.3L		.2L			.1L			
14l. Production Export/Food Chai i. Level of Biological Activity (sym	thesis of wi				7					
Rating (14D.iii.) E/H		М		L						
E/H H		H		M						
11										
M H		М		М						
M H M M M H				M L						
L M N/A ii. Rating (Working from top to bottom wetland component in the AA; Factor B subsurface outlet; the final three rows p [see instructions for further definitions of the component in the AA; Factor B subsurface outlet; the final three rows p [see instructions for further definitions of the component in	s = level of location in the series of these terms of these terms of these terms of the series of th	M M M M M M M M M M M M M M M M M M M	vity rating fr ace water in	L check] the function above (14) in the AA, where	.i.); Factor C = e P/P, S/I, and	whether	or not the AA as previously	contains a s defined, and	surface or d A = "absent"	1
i. Rating (Working from top to bottom wetland component in the AA; Factor B subsurface outlet; the final three rows p [see instructions for further definitions of the component in the AA; Factor B subsurface outlet; the final three rows p [see instructions for further definitions of the component in the AA; Factor B subsurface outlet; the final three rows p [see instructions for further definitions of the component in the AA; Factor B subsurface outlet; the final three rows p [see instructions for further definitions of the component in the AA; Factor B subsurface outlet; the final three rows p [see instructions for further definitions of the component in the AA; Factor B subsurface outlet; the final three rows p [see instructions for further definitions of the component in the AA; Factor B subsurface outlet; the final three rows p [see instructions for further definitions of the component in the AA; Factor B subsurface outlet; the final three rows p [see instructions for further definitions of the component in the AA; Factor B subsurface outlet; the final three rows p [see instructions for further definitions of the component in the AA; Factor B subsurface outlet; the final three rows p [see instructions for further definitions of the component in the AA; Factor B subsurface outlet; the final three rows p [see instructions for further definitions of the component in the AA; Factor B subsurface outlet; the final three rows p [see instructions for further definitions of the component in the AA; Factor B subsurface outlet; the final three rows p [see instructions for further definitions of the component in the AA; Factor B subsurface outlet; the final three rows p [see instructions for further definitions of the component in the AA; Factor B subsurface outlet; the final three rows p [see instructions for further definitions of the component in the AA; Factor B subsurface outlet; the final three rows p [see instructions for further definitions of the component in the AA; Factor B subsurface outlet; the final three	s = level of location in the series of these terms of these terms of these terms of the series of th	M M M M M M M M M M M M M M M M M M M	vity rating frace water in Vegetate	L check] the function above (141	.i.); Factor C = e P/P, S/I, and	whether T/E are a	or not the AA as previously Vegetated	contains a s defined, and component <1 a Moderate	surface or d A = "absent"	
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i. Discharge Ind The AA is a slope we Springs or seeps are Vegetation growing d Wetland occurs at the Seeps are present at AA permanently flood Wetland contains an Shallow water table a Other:	etland known or obs during dorman e toe of a natu t the wetland e ded during dro outlet, but no	nt season/dro ural slope edge ought periods o inlet	s	Wetl	neable substr and contains am is a knowr	inlet but no o	vithout unde utlet	S rlying impeding layer ge volume decreases
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				THAT IS	RECHARGING	THE GROUP		
riteria roundwater Discharge or R	echarge		P/P 1H		.7M		.4M	None .1L
sufficient Data/Information	ı					NA NA		
nments:								
Rating (working from to	op to bottom,	use the mat	trix below to ar		•		d rating)	
Replacement potential	or matur wetland o i	ns fen, bog, vre (>80 yr-ole or plant asso S1" by the M	ciation listed	cited ra diversity	s not contain previously are types and structural (#13) is high or contains ociation listed as "S2" by the MTNHP		cited ra	es not contain previously are types or associations ructural diversity (#13) is low-moderate
stimated relative bundance (#11)	rare	commo	abundant	rare	common	abundant	rare	common abundant
ow disturbance at AA	1H	.9H	H .8H .6M .5M .5M .4M .3L					
t12i) loderate disturbance at A (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L .2L
igh disturbance at AA #12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L	.2L .1L
Other	otential rec./ to the overall es that apply	/ed. site: (check summary and y to the AA:	neck) Y nd rating page) Education	N nal/scientific	(if 'Yes' con study; ✓ C	tinue with the	e evaluation	n; if 'No' then click NA on-consumptive rec.;
i. Rating (use the matrix			y the functiona	i points and	raurig)		1	Karum I Bir di I
nown or Potential Recreation ublic ownership or public e			ic access (no pe	rmission req	uired)			Known Potential
rivate ownership with gener	ral public acce	ess (no permi	ission required)					.15H .1M
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mments:								

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Restoration

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1	0	
B. MT Natural Heritage Program Species Habitat	М	.6	1	0.87	
C. General Wildlife Habitat	L	.3	1	0.435	
D. General Fish Habitat	NA	0	0	0	
E. Flood Attenuation	М	.5	1	0.725	
F. Short and Long Term Surface Water Storage	М	.6	1	0.87	V
G. Sediment/Nutrient/Toxicant Removal	М	.6	1	0.87	✓
H. Sediment/Shoreline Stabilization	М	.6	1	0.87	V
Production Export/Food Chain Support	М	.5	1	0.725	
J. Groundwater Discharge/Recharge	Н	1	1	1.45	✓
K. Uniqueness	L	.2	1	0.29	
L. Recreation/Education Potential (bonus points)	L	.05	NA	0.0725	
Totals:		4.95	10	7.1775	
Percent of Possible Score			49.5 %		

Category I Wetland: (must satisfy one of the following criteria; otherwise go to Category II) Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or Score of 1 functional point for Uniqueness; or Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; or Percent of possible score > 80% (round to nearest whole #).
Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; otherwise go to Category IV) Score of 1 functional point for MT Natural Heritage Program Species Habitat; or Score of .9 or 1 functional point for General Wildlife Habitat; or Score of .9 or 1 functional point for General Fish Habitat; or "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or Score of .9 functional point for Uniqueness; or Percent of possible score > 65% (round to nearest whole #).
Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)
Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III) "Low" rating for Uniqueness; and Vegetated wetland component < 1 acre (do not include upland vegetated buffer); and Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: (check appropriate category based on the criteria outlined above)

1	II	III	IV

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Appendix C

Project Area Photographs

MDT Wetland Mitigation Monitoring Easton Ranch Park County, Montana



Photo Point 1 – Photo 1 Bearing: 190 Degrees

Location: East boundary **Taken in 2010**



Photo Point 1 – Photo 2 Bearing: 250 Degrees

Location: East boundary **Taken in 2010**



Photo Point 1 – Photo 3 Bearing: 300 Degrees

Location: East boundary Taken in 2010



Photo Point 2 – Photo 1 Bearing: 200 Degrees

Location: NE corner of site **Taken in 2010**



Photo Point 3 – Photo 1 Bearing: 140 Degrees

Location: NW corner of site Taken in 2010



Photo Point 4A – Photo 1 Bearing: 170 Degrees

Location: Shields Bank-downstream **Taken in 2010**



Photo Point 4B – Photo 1 Bearing: 20 Degrees

Location: Shields Bank-upstream **Taken in 2010**



Photo Point 5 – Photo 1 Bearing: 105 Degrees

Location: Western boundary **Taken in 2010**



Photo Point 6 – Photo 1 Bearing: 0 Degrees

Location: SW corner of site Taken in 2010



Photo Point 7 – Photo 1 Bearing: 340 Degrees

Location: SE corner of site **Taken in 2010**



Veg Tran 1 – Start Bearing: 5 Degrees

Location: Veg Com 2 foreground **Taken in 2010**



Veg Tran 1 – *End* **Bearing:** 180 Degrees

Location: Veg Com 1 foreground **Taken in 2010**



Veg Tran 2 – Start Bearing: 180 Degrees

Location: Veg Com 3 foreground **Taken in 2010**



Veg Tran 2 – End Bearing: 0 Degrees

Location: Veg Com 1 foreground **Taken in 2010**



Veg Tran 3 – Start Bearing: 95 Degrees

Location: Veg Com 1 foreground **Taken in 2010**



Veg Tran 3 – *End* **Bearing:** 265 Degrees

Location: Veg Com 1 foreground **Taken in 2010**



Photo Point 2 – Panorama Compass Bearing: 270-0 Degrees

Location: SE corner of site Taken in 2010



Photo Point 3 – Panorama Compass Bearing: 90-180 Degrees

Location: NW corner of site Taken in 2010



Photo Point 5 – Panorama Compass Bearing: 30-180 Degrees

Location: Western boundary of site **Taken in 2010**

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Appendix D

Project Plan Sheets

MDT Wetland Mitigation Monitoring Easton Ranch Park County, Montana

